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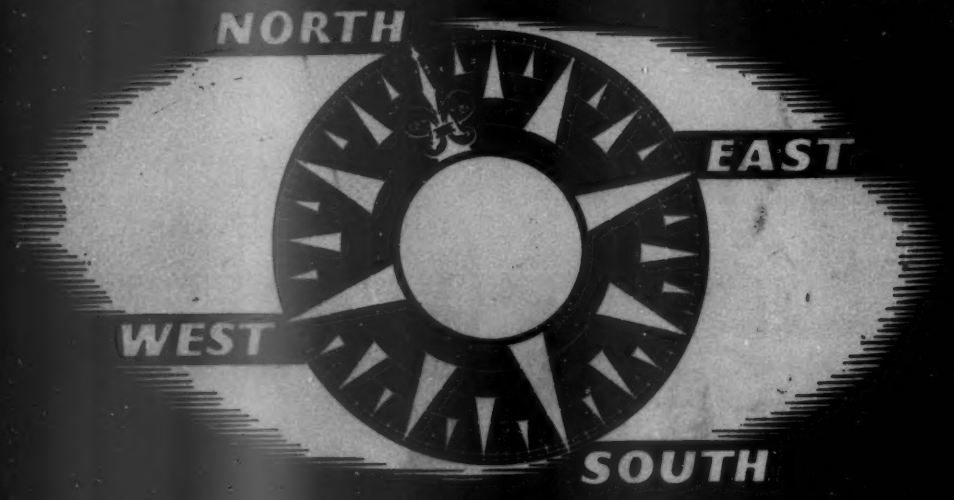

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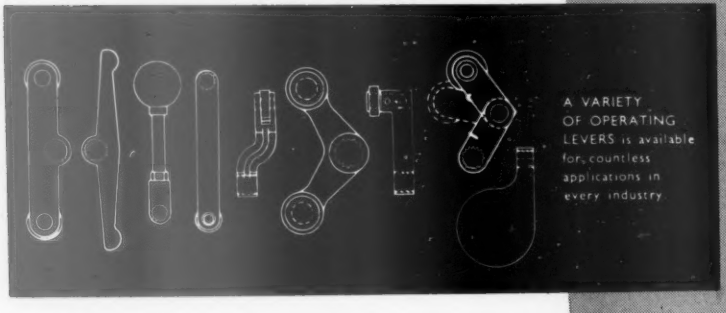

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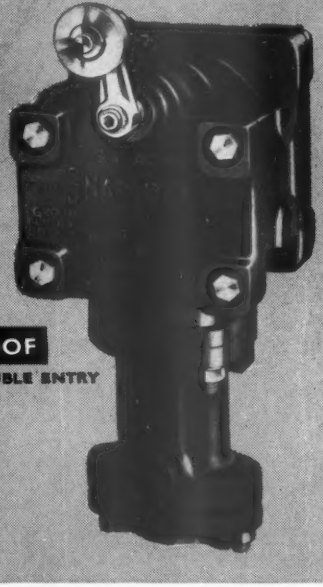

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London Transport Wage Problems

SEEKING a way of ending the London Transport bus strike, the Chief Industrial Commissioner, Sir Wilfred Neden, has been discussing the matter, as we go to press, with Mr. Frank Cousins, General Secretary of the Transport & General Workers' Union, and, at a later meeting, with Sir John Elliot, Chairman, and other Members of London Transport Executive. These talks have been held at the suggestion of Mr. Iain Macleod, Minister of Labour, who had said last week that he would act as soon as he saw a "chink of light." It is hard to see what the Minister has in mind. The demand by the union for an increase of 10s. 6d. a week to all the grades concerned, persists. The Executive, although it withdrew its acceptance of the Industrial Court award of 8s. 6d. to Central Services staff only, as soon as the union refused to abide by the Court award, no doubt would be willing to renew its acceptance; this would cost £1,000,000 a year, and economies to realise that amount already are envisaged. They include curtailment of services, which may well have to be even more stringent as the result of lack of patronage to be expected after the strike. Mr. Macleod is reported, though, to be thinking of the 3 per cent rise in wages accepted earlier this week by London Underground railwaymen, on the same basis as the increase for British Railway staff, which involves drastic economies in the undertaking. To find the £400,000 a year needed for the L.T.E. railwaymen's additional wages will be very difficult, and necessitates curtailment of train services. Any considerable increases in fares is impracticable because of consumer resistance, and presumably would be contrary to the wishes of the Minister of Transport, Mr. Harold Watkinson, who ruled them out in the case of buses. The L.T.E. moreover may be expected to be faced before long with a wage demand from its engineering staff. There is no apparent reason why an increase for railwaymen should justify one for busmen. The argument has been put forward that, as London Transport railways have been losing some £3,000,000 a year, whilst net receipts from buses have been at the rate of about £1,500,000, busmen should be paid more because their service helps to offset losses by the Underground. Some redundancy it not unlikely among busmen, despite existing shortages in some grades.

Improvements in Brazil

PRESIDENT KUBITSCHECK, reporting to the Brazilian Congress on the 1956-60 railway improvement programme, the cost of which is 28,000 million cruzeiros, say, £140 million, has stated that 195 diesel-electric locomotives will arrive this year for the Federal Railways; this will bring the total diesel locomotive fleet to 545, and only 18 per cent of traffic will be steam hauled. Brazilian builders will supply 1,500 goods wagons and 100 passenger coaches. The programme includes laying of broad (5-ft. 3-in.) gauge on the Central of Brazil Rio suburban lines and on the section serving the iron ore region of Minas Gerais, and on the Noroeste Railway between Bauru and Aracatuba, Sao Paulo. It provides also for electrification of the Rio Douro branch of the Rio suburban lines and of the Leopoldina Railway suburban line from Rio to Caxias, of the Rede Mineira system from Barra Mansa to Angra dos Reis, and of 27 miles of the V.F.F. Leste Railway to Conceiçâo da Feira. Dr. Renato de Azevedo Feio, President of Rede Ferroviaria Federal, the holding company, announces that the carrying capacity of the Central of Brazil line serving the Minas Gerais zone ("Linha do Centro") has been increased, permitting increased iron ore exports.

Diesel Activity in Ghana

LIKE its neighbour Nigeria, Ghana, though still in the beginnings of diesel traction, is multiplying the types of locomotives. Again like Nigeria, it began with the English Electric light Bo-Bo model, of 750 b.h.p., which at one time seemed as if it might become a colonial standard type of lightweight mixed-traffic unit. But during the past winter the Ghana Railways took delivery of 13 even smaller mixed-traffic locomotives built by the Birmingham Railway Carriage & Wagon Co. Ltd., and each powered by a Paxman 410-b.h.p. engine with Crompton Parkinson transmission equipment. These have been very successful in local passenger and freight working. Nigeria meanwhile had departed from the diesel-electric principle both for railway and for harbour shunting, and had acquired two batches of M A K rigid-frame diesel-hydraulic locomotives. Now Ghana is making an extension with both systems of transmission, as recorded in our Contracts and Tenders columns elsewhere in this issue, having ordered from Henschel a General Motors type of main-line diesel-electric locomotive and also a batch of diesel-hydraulic smaller-power locomotives. The third transmission system, the mechanical, has been represented in Ghana for 20-25 years with the Hunslet and Bagnall shunters and line-haul units of African Manganese and other industrial companies.

Beyer, Peacock Enters Hydraulic Field

THE annual review by the Chairman of Beyer, Peacock & Co. Ltd., Mr. Harold Wilmot, recorded elsewhere in this issue, includes announcement of the formation of a subsidiary company to be known as Beyer Peacock (Hymek) Limited. The subsidiary will enable the parent company to build diesel-mechanical or diesel-hydraulic

locomotives; the equity is divided equally between Beyer, Peacock and Armstrong Siddeley Development Co. Ltd., one of the Hawker Siddeley Group. It is understandable that, with the growth of diesel traction, Beyer, Peacock should extend its activities in this direction. Hitherto construction in Britain of high-powered diesel-hydraulic locomotives has been economical only for one builder which holds the Voith licence. The formation of Hymek gives the possibility of using other well-established hydraulic transmissions in large and small locomotives. Armstrong Siddeley now holds a licence to build Maybach engines up to 3,000 b.h.p. an engine. There seems every reason to suppose that the name of Beyer, Peacock, which enjoys so great a reputation for well-designed and reliable steam locomotives will achieve similar renown in this new field.

Overseas Railway Traffics

EAST African Railways & Harbours approximate railway revenue for March amounted to £1,622,000 compared with £1,488,000 in March 1957, an increase of £134,000. Railway revenue for the first quarter of the year was approximately £4,955,000 compared with £4,385,000 last year, an increase of £570,000. In the main, this increase can be attributed to the rise in rates and fares in October last year. With the exception of other coaching traffic, which declined by £3,000, there were increases in receipts from all services. Canadian Pacific Railway revenues for March were $41,753,650 (against $43,933,538 for March 1957) and railway expenses of $36,659,865 ($38,704,565), so that net earnings were $5,113,785 ($5,228,973). Aggregate net earnings from January 1 were $6,074,625 ($2,463,190). Salvador Railway Company receipts for March were colones 283,000 compared with colones 281,000 for March 1957. Aggregate receipts for the period July 1, 1957, to March 31, 1958, were colones 2,047,000 compared with colones 2,474,000 for the corresponding period of 1956-57; a decrease of colones 427,000. Costa Rica Railway receipts for March were colones 2,188,203 compared with colones 1,947,198 in March 1957; an increase of colones 241,005.

Praise for British Air-Conditioning

THE high standard of British ingenuity and workmanship is shown in the contract awarded to J. Stone & Co. (Deptford) Ltd. for the supply of air-conditioning equipment for all types of main-line railway coaches and railcars built in Hungary. Details are given in our Contracts and Tenders Section. The selection of Stone equipment with the possibility of joint manufacture of future requirements under licence is further gratifying in view of the fact that it has been preferred to Hungarian-built Ganz air-conditioning which was first manufactured in 1935 for installation in railcars for the Egyptian State Railways. On ratification of the agreement, after two years' negotiation, Mr. Albert Lakatos, General Manager of the Wilhelm Pieck Railway Carriage Works, Györ, Hungary, has stated: "The J. Stone equipment is regarded everywhere as the best in the world. That is why we have come to London." The installation of air-conditioning equipment in coaches and railcars is extending from railways in the tropics to those in more temperate countries. Two prototypes of the Stone equipment have already been supplied to Hungary, and it is hoped that this equipment will be adopted as standard by the U.S.S.R.

Locomotive Engineers Visit Ireland

THE Summer Meeting of the Institution of Locomotive Engineers in Northern Ireland and the Republic, briefly described on another page, was remarkable for the wide range of transport used. The party travelled from Heysham to Belfast by the well-appointed British Railways steamer *Duke of Lancaster* built by Harland & Wolff Limited for this service in 1956, and, from from Belfast to Dublin by G.N.R.(I.) multiple-unit diesel train. The extent of the changeover to diesel traction on the Irish railways was apparent from the fewness of the steam locomotives noticed. This was emphasised by a display of each of the diesel locomotives in service on Coras Iompair Eireann, arranged at the Inchicore Works by Mr. O. V. S. Bulleid, Chief Mechanical Engineer of C.I.E.; a direct comparison could be made with locomotive No. 800, a 4-6-0 built at Inchicore in 1939 by the then Great Southern Railways, and the most powerful steam locomotive to run in Ireland. The use of laminated wood for coach body construction was also seen at the works. Other establishments visited included the large shipyards and engineering shops of Harland & Wolff Limited in Belfast; and the largest milled peat producing site in Western Europe at Boora, Co. Offaly; the fact that the number of production days each year at the latter plant is only some 50 to 65 emphasises the need for complete reliability of all mechanical equipment including the 35 small diesel locomotives on the site.

Turf-Burning Experimental Locomotive

THE production of peat in a country such as the Republic of Ireland, which has little coal and no oil resources, is backed, as is to be expected, by the Government. It is not surprising that attempts to design and build a locomotive fired by such a home-produced fuel should have been encouraged by it. Members of the Institution were able to see the result of some years' patient work when they visited Inchicore, where one of the exhibits was a prototype turf-burning locomotive. This was built to the designs of Mr. Bulleid, and embodies several features unusual in steam locomotive practice. Superficially resembling the "Leader" class locomotives designed by Mr. Bulleid for the Southern Railway, it is carried on two pivotless bogies each with six wheels driven from two cylinders via a jack shaft and roller chains. The boiler specially developed for burning the fuel is rectangular in shape and double-ended with a central firebox which burns the milled peat on a chain-type grate. The performance of this experimental machine, which is as bold as other designs by Mr. Bulleid, will be followed with interest.

Technical Authorship

THE shortage of good technical writers increases in proportion to the advance of scientific progress. In every technological field related literature is essential if maximum exchange of ideas is to take place. Unfortunately, the ideal qualifications of the technical writer are rarely combined. Broadly, these are: the possession of a sound practical knowledge of the particular branch of technology with which the writer is dealing, and the ability to express himself clearly and concisely. In an effort to improve the present shortage of technical writers, the City & Guilds of London Institute has initiated a four-year part-time course in technical authorship. The scheme of instruction is intended for those with engineering, technical or scientific training and experience who wish to become technical authors in industry or government service. It has been designed to meet the needs of younger entrants, but examinations will also be open to practising technical authors. The Intermediate examinations will be offered for the first time in 1960, and the Final examination in 1961. Syllabuses of both examinations show the field to be well covered. Perhaps from the point of view of the practical writer it may be felt that the bulk of the essential tuition lies in the Intermediate syllabus—the Final examination deals to some extent with aspects more usually the responsibility of the publisher.

Major Projects in Japan

THE management of the Japanese National Railways has always been ready to pursue a bold policy when necessary. This is shown in the equipment in 1925 of all rolling stock with automatic couplers and the recent experiments with, and decision to adopt, a.c. electrification. Even more bold is the conversion, now reported to be under consideration as part of a five-year improvement plan, of a considerable mileage of track from the 3-ft. 6-in.

gauge, now standard for the J.N.R., to 4 ft. 8½ in. A further project, referred to in our overseas columns, is to build a new 4-ft. 8½-in. gauge line between Tokyo and Osaka; this will relieve the existing busy main line between these two principal population centres, and will not prejudice eventual broadening of the latter if it is found practicable. The new line will allow of some very high speeds.

"Light-load" Device

AS part of British Railways' plan to fit all freight wagons with continuous brakes, increasing use is being made of a "light-load" device. This comprises, essentially, a manually-operated valve, controlling two vacuum cylinders. The equipment is necessitated by the comparatively light construction of the wagons, which causes the gross/tare weight ratio to increase considerably under full-load conditions. The device allows sufficient braking for loaded vehicles, while preventing damage to empty wagons by over-braking. The apparatus is being fitted to mineral wagons of 16-tons capacity and above. In the place of the usual single vacuum cylinder, two are fitted, of 15 and 18 in. dia. respectively. When the wagon is empty, only the smaller one is in use; when loaded both operate. To permit this selection, a co-acting changeover lever, operated by hand, is fitted to each side of the wagon. Although many railways using an air-brake system have a similar device, few countries with vacuum stock, so far, have adopted the idea. The Spanish Railways, for example, use it to a limited extent, and it is being considered by other countries.

Track Maintenance in South Africa

THE Orange Free State System will be the first in the Union of South Africa on which track maintenance will be fully mechanised, probably within the next two years. The estimated cost of what really is the experimental introduction of track maintenance mechanisation on a comprehensive scale is £375,000. Two on-track tamping machines are already on preliminary work, which is being confined to the double-track line from the Free State border on the Vaal River to Bloemfontein, 210 miles. The labour force needed to maintain the 14,000 route-miles of track in the Union averages about one labourer a mile and a ganger every 10 miles. The on-track tamper can deal with more than six sleepers a min.; it is stated not only to do the work normally carried out by 120 labourers, but also to do it at a uniformly high standard, without interruptions and in all weathers. The mechanically-tamped track is reported to have proved more durable and resistant to movement than that tamped by hand.

British Railbuses

TWO of the five makes of diesel railbuses ordered by British Railways in 1957 are now running, the W.M.D. production being at work in addition to the A.C. Cars units described in our issue of February 21. These two types will be followed almost immediately by the B.U.T. vehicles, and then by the Bristol and Wickham types. All of these are admittedly experimental in their construction, for of the five only Wickham and B.U.T. previously had built diesel railbuses to their own design. There must be a sense of regret, enhanced by the recent developments in the general and financial position of British Railways, that the potential abilities of the railbus to effect economies were not put into effect with the shortest delay by acquiring some examples of the one railbus in the world which had consistently operated with considerable success, at the time the B.R. orders were placed, to the extent of some 700 railbuses in five countries. The British Transport Commission did not see fit to approach that manufacturer; and though B.U.T. has acquired the Uerdingen licence for body suspension, that is but a small detail in the whole, so that even when all five makes are delivered there will be no representative on British Railways of the one type proved on a wide variety of railways.

Joint Enterprise

WITH the acceptance by the unions of the British Transport Commission's offer of a 3 per cent wage increase, the threat of a railway strike, with all its repercussions on the national economy, has been avoided. There can be no doubt that the peaceful outcome of the negotiations in large part has been due to the manner in which the problem has been approached by Sir Brian Robertson as Chairman of the Commission. Both he and the Government have shown their appreciation of the unions' point of view. The union leaders also have improved their status by their responsible handling of a situation which quite easily could have become chaotic. To a greater extent than is usual in matters of this kind, the recent discussions developed on a tripartite basis, and great skill was required and displayed in achieving a solution to the problems under review. The whole atmosphere in which the agreement was negotiated has been very different from that governing similar wage talks in the past. With the acceptance on both sides that the basic factor was the ability of the industry to pay, everything depended on the willingness of the Commission to consider the principle of higher wages and the unions' co-operation in measures to make such increase possible. The terms on which the settlement was reached hold wide and important implications not only from the point of view of the railways themselves but from that of industrial collective bargaining in general.

A number of special factors in the settlement deserve attention. By its award, the Railway Staff National Tribunal established for the first time the principle of the dependence of wage increases on the relevant industry's ability to pay. The establishment of this principle is in itself a landmark in industrial negotiation of this kind. That an offer was made and accepted despite the Tribunal's inability to recommend a wage increase at the present time in no way vitiates the importance of the principle laid down by Sir John Forster. The cost of the award is estimated at about £10 millions for a full year and at £5 millions during the current year. There has been some interrogation in the national press as to the capacity of the Commission to increase wages so soon after the Chairman's pronouncement in April. Then, he stated that he could offer only an unspecified increase in October after a review of the financial position at a somewhat earlier date. The answer to this must be that, at the time of his first proposition, Sir Brian Robertson was dealing with the normal financial position of the railways in existing circumstances. When he made his final proposal, which included the payment of an early advance of 3 per cent together with the promise of an inquiry into the railway wage structure, he was basing his offer on abnormal circumstances. These include the curtailment of services and the introduction of a widespread and stringent scale of economies which cannot in any circumstances be deemed normal. The principle that the industry itself must finance the improved wages can only be adhered to with the aid of the immediate initiation of large-scale economies. Many of these are certain to have repercussions on the travelling and trading public of the country. They will also affect the workers themselves, for the only major economies practicable on the railways must be in the direction of manpower. For their part, the unions have agreed to give full co-operation to enable these economies to be carried out expeditiously. In fact, they have accepted the principle of higher pay for fewer men.

It is obvious that retrenchment to the extent necessary to yield the extra money required must be great. It cannot be carried out without far-reaching effects on the facilities now offered to travelling public and traders. There may well be considerable cuts in train services. Certain sections of line may be closed and this will mean reduced station staffs and so on. It is at this point that the Government must play its part in assuming responsibility to the public for the effects of the settlement which has been reached. The Commission has stated that the utmost care will be taken to cause the minimum of inconvenience to passengers and to reassure traders that nothing will be

done to prejudice the standard of freight services. Much routine process will have to be side-tracked if facilities are to be withdrawn sufficiently speedily to enable the economies effectively to be made. The public, ever ready to criticise the loss of facilities of which it makes little use while they are available, must also co-operate. It must be made to realise that such losses are part of the cost of maintenance of an efficient railway system, modern in its approach both to facilities available and in remuneration of its employees. For its part, the Government has already undertaken to deal with the problems arising from the maintenance of level crossings and over-bridges which together cost the Commission about £3 millions a year, and the upkeep of which bears onerously on the railways because of the dual user of the installation. Very little public comment on the proposed economies has been made yet. This is undoubtedly because full awareness of the implications of those economies has not yet, and will not be, gained until the cuts are announced. As far as the railwaymen themselves are concerned, no doubt every effort will be made to cover redundancy by normal wastage, while it is only comparatively recently that new and improved redundancy conditions for the conciliation staff have been agreed. Numbers employed on British Railways have tended to fall since the beginning of 1949, when the figure was 648,740. In 1952 it had dropped to 600,000 and, from then until the beginning of 1956, it had shown a further fall to 563,000. A slight upward movement over the next two years brought the number to 573,500 at the beginning of the current year. Most of the additional staff had been recruited as a result of the modernisation plan and has been engaged on drawing office, electrification, signalling construction, and permanent way work. Since the beginning of 1958, numbers have tended to fall at the rate of about 1,000 a month and, at the end of March, the figure was down to 571,000.

An extremely important point in the decision of the Railway Staff National Tribunal may, if not stressed, be forgotten in the general relief which has followed the averting of a strike. This is the paragraph which has been extensively claimed as stating that railway employees are underpaid in comparison with workers in other industries. In fact, the tribunal stated that "the evidence before us shows that the basic rates of staff covered by the present claims are low in comparison with those cited to us as applying in other nationalised industries, public services and certain private undertakings." This is very different from stating that all railway wages are low in comparison with those in other industries. No doubt it is true that the pay of some grades of railway workers compares unfavourably with that earned by employees in similar occupations outside the service. But it must be clear that, in many cases, railway rates of pay are directly competitive with those offered for similar work in other industries. It is unlikely that the railways could maintain their staffs if the rates they offered were seriously out of step. Moreover, the tribunal was referring specifically to basic rates and not to earnings. It is, we believe, important to make this point now lest it be raised in the future.

North Eastern Region Summer Timetable

IN North Eastern England one of the most striking timetable changes is that resulting from the closure of the Saltburn-Whitby coast line as between Loftus and Whitby West Cliff. As a result, the service over the single line between Nunthorpe, Battersby, and Grosmont is to be completely transformed. Last summer this line carried six southbound and seven northbound trains daily; this summer, at the height of the season, there will be 15 southbound and 14 northbound. By the use of multiple-unit diesel sets, also, the average time from Middlesbrough to Whitby Town will be reduced from 1 hr. 46 min. to 1 hr. 16 min.; between Middlesbrough and Scarborough there will be 12 through workings in place of the previous six. Compared with the previous through Middlesbrough-Scarborough trains, which at Whitby served the West Cliff station only, connection to and from Whitby Town being made by changing, all through trains will now serve both stations, but from 14 min. upwards is needed in Whitby in order to cover the reversal of each train at both Whitby Town and West Cliff. A lavish service is being provided.

Between York and Darlington the gradual speeding up of the schedules over this fast-running stretch of line continues, and one of these accelerations, though of one min. only, is of interest in that the train concerned, the 5.5 p.m. from Newcastle to Kings Cross, will now by a narrow margin have the fastest start-to-stop schedule in Great Britain. This will be over the 44.1 miles from Darlington to York in 39 min., at 67·8 m.p.h. Seven trains in all will make the same run in 42 min. (63 m.p.h.), and four in 44 min. In the reverse direction the fastest timings will be 41 min. (64·5 m.p.h.) by two expresses, 43 min. (61·5 m.p.h.) by seven trains, and four more in 44 min., making a total of 24 daily bookings at between 60·2 and 67·8 m.p.h. The 9.40 a.m. from Kings Cross (the summer version of the 9 a.m. down) is to omit the Darlington stop and run the 80·2 miles from York to Newcastle in 80 min., to arrive at 2.31 p.m. in advance of the "Flying Scotsman."

A Bold Signalling Policy Needed

WHEN the modernisation plan for British Railways was being drawn up, it was realised that a considerable extension of up-to-date signalling methods was essential to its success. Much work is in course of execution; it includes improved telecommunication and marshalling yard equipment. Managements on the Continent face like problems. In many countries there has been of late years a great increase in the use of power signalling, often accompanied by applications of remote control on an appreciable scale, automatic control of junctions, and other methods designed to handle traffic more quickly and efficiently at lower cost.

Some of the difficulties facing British signal engineers were reviewed by the newly-elected President of the Institution of Railway Signal Engineers, Mr. J. F. H. Tyler, in his inaugural address delivered recently. His varied experience on both British Railways and London Transport lines and close association, through the International Union of Railways and other channels, with engineers abroad, have convinced him that railway managements in Britain must seek to arrive at a set of principles on which a reasonably uniform system of signalling can be built up and applied steadily in the future. Their elaboration must be combined with a thorough investigation into the whole question of design and manufacture; the object should be to reduce the cost of supplies and, by shortening the time required for it, also the cost of installing any work, particularly pressing from the point of view of the amount of staff needed.

A committee has indeed been sitting for some time to investigate certain aspects of this matter but Mr. Tyler considers that more concentrated continuous action is needed to save valuable time; this task might with advantage occupy a selected number of experienced technical staff full time for a period. There is no merit in standardising for its own sake; but the disadvantages of having many systems and designs are felt keenly today. A serious attempt, therefore, ought to be made, he considers, to arrive in consultation with industry at such a level of agreed practice as will suffice to enable signalling installations to be constructed more rapidly and economically. It will certainly benefit all concerned if these proposals are implemented.

Closely connected with this, the address emphasises, are the recruitment of enough men to the signalling profession who are imbued with that attachment to it so distinctive of its members hitherto, and the training of them at all levels and provision of adequate instructional material. The latter problem has practically always existed; none of the books published on signalling of various kinds has been able, chiefly for economic reasons, to provide that complete detailed treatment of the subject which Mr. Tyler rightly regards as essential. Unfortunately the cost today of producing such a work must be very

heavy, largely because of the special illustrations essential to it. The market is a small one. The book could only be sold cheaply if subsidised in some way. In other countries the situation is the same. Even in America, where the field is much more extensive, there is no single book of the scope required, although there, as in Germany, there has for some 50 years been a technical journal devoted exclusively to signalling and related subjects.

A few successful attempts have been made in Britain to provide college courses in signal engineering, but a difficulty has often been the finding of enough students in a particular locality to justify provision of the essential facilities, apart from the ever present one of providing lecturers. The increasing importance now being attached, however, to signalling and the higher standard of general technical qualifications required today of the signal engineer may gradually improve the position by encouraging more men to find an attractive future in what Mr. Tyler describes as an absorbingly interesting calling, distinguished by the widest of railway interests.

An Unconventional Railway Report

(By a correspondent)

THE Chesapeake and Ohio Railway handles its annual reports in a way of its own. On January 2 a "flash report" told shareholders that 1957 was another good year, producing a record net income of $68 million and a record dividend of $4 a common share. A few facts and figures explained tersely how these results had come about. The outlook for 1958 was said to be good, though shareholders were warned that brief pauses were natural as America—and the C. & O.—went on to greater heights. Quite a cheery New Year's message from the railway's headquarters at Cleveland, Ohio!

In due course the railway company addressed a detailed annual report to its shareowners and also to "C. & O. men and women, customers, on-line communities, suppliers and the public." After stating that the C. & O. recorded the highest earnings in its history of 121 years, the report mentioned the advance of new railroading methods, based on electronics and other scientific devices. It then claimed that, because 1957 was marked by high-volume work well done, everyone benefited. For instance, railway employees earned an average annual wage of $5,900, an increase of $500 on 1956. Though nearly 3 per cent more revenue ton miles were worked in 1957 and the hourly output of freight train operation was 8 per cent higher, the average number of employees was reduced by 1,157, or 3·3 per cent to 32,921. Of that number 1,164 subscribed for shares of C. & O. common stock under the company's purchase plan. Employees now hold 77,477 shares, an investment of $3·6 million, which has drawn more than $750,000 in dividends.

The railway is proud to be the nation's foremost orginator, carrier and exporter of bituminous coal. Last year its diesel locomotives lifted from the collieries 63·7 million tons in 1·4 million wagons. The tonnage was 13 per cent of total U.S.A. output and 23·3 million tons were carried to tidewater for export abroad. The C. & O.'s port at Newport News set a new record for both export and domestic coal shipments of 27 million tons. The piers there are equipped to load coal into six vessels at one time and deal with more coal than any other ocean port in the United States. The most modern of the berths was built at a cost of $3·5 million to ship coal at the rate of 2,000 tons an hour. At Presque Isle, near Toledo, Ohio, the C. & O. has a second port which broke all records last year by teeming nearly 19 million tons of coal into vessels railing to places on the Great Lakes.

Coal and coke receipts amounted to $233 million in 1957, an increase of over 6 per cent and close on 54 per cent of total operating revenues of $432 million. Merchandise receipts decreased by $2 million to $168 million, while passenger service brought in only $14 million, a million less than in each of the three previous years. With the aim of diversifying its traffic, the C. & O. took over the 2,100 miles of the Pere Marquette Railway 10 years ago and got access to Michigan State, where scope existed for industrial development. The P. M. was, however, an expensive line to run, its operating ratio before the war being 23·5 per cent above the C. & O. low figure of 60·5 per cent. The present-day C. & O., with 5,100 miles of road, did its work at 69·4 per cent of revenue last year, operating expenses having risen by $16 million, or more than 5 per cent, to $300 million. Earnings, before charges, were up $582,000, less than one per cent. The other two coal roads in the Pacohontas Region did better; operating more economically, the Norfolk & Western's earnings were $3,360,000 higher, or 8 per cent, and the Virginia's increased by $2,820,000 or 17 per cent.

The C. & O. is justified in claiming that it kept its rolling stock and permanent way in excellent shape last year. It spent $71·4 million on 55 locomotives, 1,148 goods wagons and 6,457 mineral wagons. The last item meant a 10 per cent addition to the mineral hopper wagon fleet and ensured that no mine on the C. & O. shut down for a single day through lack of railway wagons; regular maintenance kept 99 out of 100 wagons serviceable throughout the year. Neither was there any deferred maintenance of way and structures. New rail was laid on 142 miles of line, 379,000 sleepers were replaced and curves were reduced at many points.

In forthright style the report says that "the old way of doing things took quite a shaking up on C. & O. in 1957," adding that "the price tag on the year's additions and improvements was $88 million, equal to one-fifth of total revenues." That sum raised the total spent on the property since the war to $700 million, making practically a new railroad. As an example of the changes carried out, the new classification yard at Russell, capable of sorting 9,000 wagons a day, is described and illustrated. Another paragraph headed "electronic shepherd keeps tabs on roving freight cars" tells how a sender or consignee can find out where his goods are at any hour of the day or night through a central control office equipped with electronic machines. Again we learn that "in 1957 C. & O. began unloading ocean vessels at Newport News with the fastest and most efficient longshoreman in the world, its giant new $8·5 million bulk materials import pier." Three travelling cranes, working together, are said to be able to discharge a cargo of ore faster than a ton a second.

Despite heavy expenditure in 1957, the C. & O. ended the year with working capital of $44 million and short term investments, plus cash, of more than $60 million. The Board of Directors thinks these sums are more than adequate and sees ahead, "over the long term, years of increasing coal production and for itself increasing coal traffic." The Board may be overconfident that nothing in 1958 will disturb the dividend rate of $4 a year, but it is refreshing to contrast its optimism with the doleful theme of the Pennsylvania's report that the American railroad industry is in a precarious position. That great railroad did much to improve its plant last year and in November achieved complete diesel and electric operation, which will lead to substantial savings. More questionable was the temporary economy made by restricting repairs to rolling stock until 16,700 unserviceable wagons were stored at the year end. Should traffic revive in the fall of this year the Pennsylvania may be short of wagons as many railways were when the 1954 traffic recession eased off.

The C. & O. is wise to avoid arrears of wagon repairs, however exceptional that policy may be. It also breaks fresh ground by appending to its annual statement of affairs, "A report to the owners from C. & O. people on the job." This addendum reproduces photographs of a dozen members of the staff in different grades at work and adds offhand remarks they made about their duties. The idea was to give a few employees the chance to tell the owners about up-to-date railroading. One wonders whether the rest of the 32,900 employees are equally satisfied with their lot!

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Curtailment of Passenger Services

May 13

SIR,—Today's newspapers contain a list of services where cuts are proposed to effect economies in connection with the settlement of the railway wages dispute. Amongst them are services out of Paddington on several routes and the Marylebone main-line services. If these cuts are made, it should be possible to close Marylebone as a passenger station; Paddington should be able to handle its long-distance services. The local services on the High Wycombe line would also go to Paddington, while the Aylesbury services would be dealt with at Baker Street.

The complete closure of Marylebone as a passenger station would permit a large immediate economy of staff. Additional later economies should be possible when the rebuilding of Banbury Station is complete. Then all main-line trains could be continued to this point, the Great Central trains branching off at Rugby, Leicester, and so on. This would allow the Woodford Halse-Aylesbury section to be singled: controlled by a C.T.C. type of signalling, it would still retain a useful traffic capacity. The Grendon Underwood-Ashendon section could be abandoned completely. These changes would mean a considerable reduction in track mileage, with good financial savings as a result.

What would be the cost of such changes, from a traffic point of view? Harrow passengers would lose their present through service to the East Midlands (at present, only two trains a day northbound) and Wembley Hill, Sudbury & Harrow Road, and Sudbury Hill would be closed completely. The latter already have only a peak-hour service. These would be trifling costs against the advantages.

British Railways have too many main-line stations; many towns have two or more. There is no local suburban traffic to justify this multiplicity: spurs could be built to route all trains through one station. So far, only at Leeds are there proposals along these lines. I would like to see many more similar schemes in the modernisation plan. Examples are Nottingham, with all traffic diverted to Victoria; and Edinburgh, with closure of Princes Street and concentration on Waverley.

Yours faithfully,

D. J. MANTON

"Bibury," Kennel Lane, Leatherhead

Cross-Channel Services

May 12

SIR,—The letter from Mr. G. P. J. de Clermont published in your May 9 issue, on the Newhaven-Dieppe service, shows the lack of integration between internal and international services apparent in the Southern and to a smaller extent in the Eastern Regions. Segregation of local from international or long distance traffic is sound enough at summer peaks, but not at slack periods. The electric services proposed for Stage I of the Kent Coast electrification do not provide for local trains to run into Dover Marine so that a change and two separate bus journeys in Dover will still be required for Continental passengers other than those by boat train from or to London.

There is an admirable opportunity of saving train mileage and giving a more comprehensive service to both local and international passengers. In Belgium the local Ostend-Brussels multiple-unit electric train services provide all the boat train services in their stride; the only exceptions are the through trains to Germany. In France, except at summer peaks, the trains from the French ports are open to local passengers and are shown in the timetables. The Southern Region, however, does not mention boat trains out of the local timetables so that even when passengers realise that they can use them, subject to a stiff supplement in the case of Folkestone and Dover, they do not know when they run. In the Eastern Region, one train between London and Harwich is restricted to international passengers throughout the year, and boat trains are shown in the public timetables.

The use of multiple unit stock on boat trains without special baggage vans raises the question either of a relaxation of Customs objections to carrying bonded baggage in ordinary brake compartments with sealed doors, as is done in Holland and Belgium; or transfer from Victoria to the ports of the examination of registered baggage.

Electrification, with its complete re-casting of the timetables, provides an admirable opportunity for re-arranging the boat train services at slack periods to fit in with local services. The Anglo-Irish Express services of the London Midland and Western Regions and the Liverpool-Harwich service of the L.M.R. and Eastern Regions show how trains in connection with cross-Channel services can be arranged to serve local needs.

Yours faithfully,

G. H. HAFTER

49, Church Street, Isleworth, Middlesex

Railway Motive Power

May 6

SIR,—In 1954 the Norfolk & Western Railway worked the whole of its traffic with 438 steam locomotives and was regarded as the last stronghold of steam power in America. Last year 170 diesel units handled 22·6 per cent of the N. & W. gross ton-miles and represented 18 per cent of total tractive power, the balance being supplied by 346 steam engines. The mixed supply of motive power carried a record traffic of 77,353,700 revenue tons for an average distance of 300 miles, producing 23,218,891,000 revenue ton-miles, or 10,890,300 per mile of 2,132 miles of road operated. Gross ton-miles worked in a freight train-hour were also a record at 87,992, a 10 per cent advance on 1956 and 20 per cent above 1954. So 30 more diesel units are on order for delivery this year. They will have tough work to do as the N. & W. net train load was 2,614 tons last year.

Yours faithfully,

R. BELL

Clacton-on-Sea

Passenger Coach Design

April 21

SIR,—Mr. H. M. MacIntyre's condemnation of a widely-used type of British Railways open 64-seat coach, published in your April 18 issue, is unfortunately justified; but it would be disastrous if experience of these vehicles led the public to dislike the idea of open coaches as such.

Four-a-side in a compartment with side corridor is equally uncomfortable. Yet, on a fare basis, it is reasonable to provide 63 or 64 second class seats in a vehicle size which seats 42 first class passengers. An omnibus, with about 28 ft. × 8 ft. useful area for seating, has up to 45 seats crammed in, and at 36 seats is quite luxurious. Therefore the 50 ft. × 9 ft. available floor space in an open railway coach ought to be able to seat 64 with ample leg-room and seat width. Luggage rack space, too, can be increased by using layouts other than that of the traditional restaurant car, in which the tables are superfluous for normal use. However, if Mr. MacIntyre wants first class comfort, or even 48 seats a coach, he must pay first class fares if British Railways are ever to become a profitable concern.

Yours faithfully,

JOHN RODGERS

132, Worrin Road, Shenfield, Essex

THE SCRAP HEAP

Falling Down on the Job?

The following extract from a staff notice in Table Bay harbour is printed as it appeared. The signature is that of one of the *serangs* (non-European boss-boys) and the notice indicates a positive approach to the economy campaign of the South African Railways. The notice reads:—

STIFF NOTICE

"It has come to the attention of the Administration that employees have been dying on the job and refusing or neglecting to fall over.

"This practice must cease forthwith; and employee found dead on the job in an upright position will immediately be struck off the pay roll.

"In future if an overseer notices that an employee has made no movement for a period of two hours it will be his duty to investigate. . . . Overseers are cautioned to make careful investigation —holding a pay voucher in front of the suspected corpse is a reliable test.

"There have however been cases where . . . the hand of the corpse has made a spasmodic clutch even after *rigor mortis* has set in."—*From "Rhodesia Railways Magazine."*

Journey in Korea

The local train arrived, puffing somewhat asthmatically with a mail van and three carriages in tow. Then the assault began. There were three times as many passengers on the platform as the train could contain. But this was obviously nothing new to them. . . . The guard in the mail van defended its relative spaciousness against encroachment with all the determination of a veteran. Finally, by dint of superhuman shoving and pushing, and holding our breath, we all got in. And, with a long wail on the whistle, we were off. Panting uphill and freewheeling down dale, the train trudged along at a comfortable 20 m.p.h. At each station it disgorged some of its load, and the air in the carriage became less oppressive. The stops were protracted; one felt this was a civilised country where the train waited on the passengers. A station master in a blue uniform, gold-braided cap, and white gloves provided a somewhat incongruous touch.—*From "The Times."*

"Transport Treasures" at York

The "Transport Treasures" exhibition train has been brought to York to coincide with the re-opening of the Small Exhibits Section of the York Railway Museum, closed since December; it was opened yesterday by the Lord Mayor of York, Alderman E. L. Keld. The exhibition includes the saloons of Queen Victoria and King Edward VII, an old dining car, and two exhibition coaches housing many small relics.

The Small Exhibits Section museum has been re-decorated throughout, and re-organised. The large and valuable print collection has been re-mounted in contemporary frames; the selection shown is changed from time to time. Perhaps the most noteworthy feature is the greatly enlarged model collection, which covers the whole period of locomotive and carriage development. There are models of an 0-6-0 freight locomotive built for the Stockton & Darlington Railway about 1845 and of Sir Nigel Greasley's streamline Pacific, *Silver Link*. Mr. J. H. Scholes, Curator of Historical Relics, British Transport Commission, has been responsible for the preparation of the Exhibition as well as the re-organisation of the museum.

Rebuilding Victoria Station

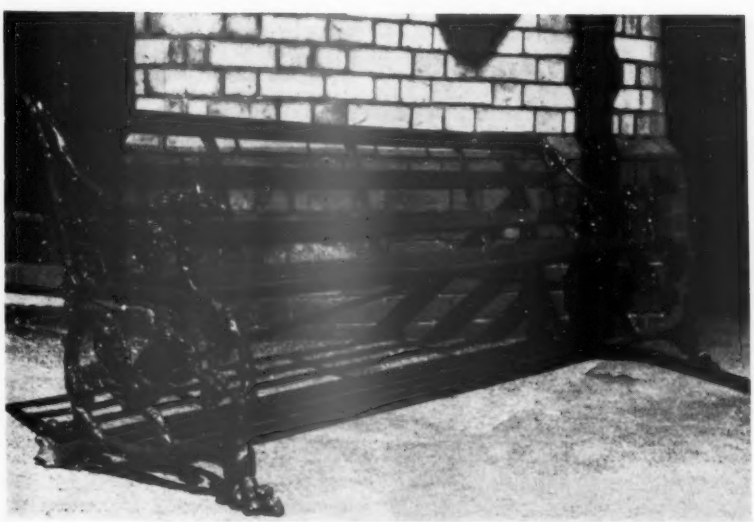
One of the most remarkable feats of engineering organisation on record has been accomplished in the building of the London, Brighton & South Coast Railway's station at Victoria. The station has been transformed, piece by piece, without disclocation of the enormous traffic or any inconvenience to passengers. The transformation began four years ago and costs £2,500,000. It has more than quadrupled the accommodation and has provided a notable additions to London's buildings. The old station was 800 ft. long, 230 ft. wide and covered 6½ acres. The new one is 2,500 ft. long, 320 ft. wide and covers 14½ acres.—*From "The Evening News," May,* 1908.

[The final stage of the work was fully described in *The Railway Gazette* of July 10, 1908; it had been brought into use the previous week. We described the earlier stages on July 6, 1906.]

Not at Baker Street

The whole occasion [the arrival at Victoria of President Gronchi] was rather like an Ealing Studios film of a state visit by a foreign potentate. . . . To arive at Victoria from a Pullman coach called *Phœnix* on a red carpet with the whole paraphernalia of white plumes, Garter ribbons and footmen in crimson and green . . . well, it's all like the beginning of a Sherlock Holmes story.—*Donald Edgar in the "Daily Express."*

Furness Railway Station Furniture



Photo] [*D. J. W. Brough*

Seat with squirrel motif at Lake Side (Windermere). These distinctive seats are still to be found at other stations of the former Furness Railway

Round the Station

The Pensioner

Often have we heard him mutter
In dejection and disgust:
"Roll on, superannuation,
"And you won't see me for dust."
But the odds are he'll discover,
With considerable surprise,
That the old ties are much closer
Than he'd reason to surmise.

Take no notice if he tells you
"When he goes he'll go for good;"
He'll pop in again, quite often,
When he's in nostalgic mood.
Bottle up your irritation,
It's quite lonely on the shelf
And, if providence permits it,
You'll be there, some day, yourself.

Though he's all too prone, as memory
Gilds for him the former scene,
To add cubits to the stature
Of the man he once has been,
Treat with courtesy and kindness
This old comrade of the line,
Till he gets a quiet welcome
From his pals of auld lang syne.

A. B.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Eastern Railway Electric Stock

Consignments of multiple-unit electric coaching stock are now arriving in Calcutta from Western Germany. It is reported that they are or will shortly be replacing some of the locomotive-hauled trains operating from Howrah on the 3,000-V. d.c. electrified line to Burdwan. They are in three-car units of which the centre is the motor coach controlled from motormen's compartments in the trailer cars. The coaches are 12 ft. wide, as compared with 10 ft. in the existing steam-worked suburban trains, with corresponding increase in carrying capacity; two three-coach units carry as many passengers as eight steam-hauled coaches. The electric locomotives in service in the Howrah area are the most powerful in India, having a tractive effort of 3,120 h.p.; they are 65 ft. 10 in. long, weigh 110 tons, and are of the 3,000-V. d.c. mixed-traffic type.

VICTORIA

Tractors in Shunting Work

Substantial reductions in operating costs and improved service for customers are being achieved by the Victorian Railways through the use of tractors for shunting in goods yards. The shunting tractor was first used by the Victorian Railways over 20 years ago. Today, they are in use at Footscray, Orbost, Morwell, Moe, Kerang, Sea Lake, Spotswood, Storehouse, and Newport Workshops.

By replacing locomotives for shunting wagons in sidings and other railway yards, operating costs are considerably cut. Minimum savings at Footscray goods yards alone are estimated at £15,000 a year. Tractors have provided improved service by reducing delays to goods trains through cutting down shunting at roadside stations, and by their ability to place wagons in sidings at the time most convenient to customers who might otherwise have had to wait for a locomotive to become available. At one location, the improved service regained £5,000 worth of traffic in a year from road transport.

A threatened move reported recently by the Australian Federated Union of Locomotive Enginemen to boycott the tractors did not materialise.

WESTERN AUSTRALIA

New Bridge Over Swan River

Work on a new railway bridge crossing the Swan River at North Fremantle is expected to be commenced in the near future. The new structure will be sited a short distance downstream from the existing road bridge, and is estimated to cost £1,288,000.

When designs are ready for the new bridge it is believed that construction could be completed in two or three years. Demolition of the existing rail bridge would then be undertaken to provide ships with acess to five new berths which the Fremantle Harbour Trust proposes to build upstream towards the new structure.

It has been indicated that maintenance of the present bridge will soon become costly because of age and deterioration. It was built about 60 years ago.

The existing North Fremantle Station will be abandoned and a new one built between John and Swan Streets on a deviation leading to the new bridge. The northern approach to the bridge will pass about 50ft. above these two streets. The horseshoe road bridge at James Street, on the upstream end of Victoria Quay, will be demolished.

The construction will make provision for the eventual conversion of the line from Kalgoorlie to Fremantle to standard gauge (4 ft. 8½ in.).

JAPAN

New Tokyo-Osaka Line Planned

Plans for the fastest express train service in the world have been drawn up by the National Railways. Trains, running over a new 310-mile track, will link Tokyo with Osaka in 2½ hr. with three stops.

The locomotives, for which tenders are to be called shortly, will haul the trains at a top speed of 155 m.p.h. and a cruising speed of 138 m.p.h. The new line will take five years to build and cost some £170 million. The existing line is 343 miles long and was built at the end of the last century.

UNITED STATES

Economies in Staffing Stations

The Minneapolis & St. Louis Railroad has won an important victory in its fight to eliminate staff wastage at small country depots where very little business is done. Both the Iowa Commerce Commission and the Minnesota Railroad & Warehouse Commission have sanctioned a number of so-called station "dualisations," that is, supervision of more stations than one by a single agent, by the M. St.L. RR., despite opposition from the labour unions and the State Attorney-General. Other railways in the Middle West have been closely watching these proceedings.

Standardised Points and Crossings

Hitherto there has been little or no standardisation of railway switches and crossings in the U.S.A., and the diversity of design has been considerable. Some five years ago a group of railways serving St. Louis, realising that considerable economies might be effected in this way, reached agreement on standards now common to them all.

These standards, which are all in 115 lb. and 132 lb. per yd. f.b. rail, are for 16-ft. 6-in., 22-ft. and 30-ft. switches and various angles of crossing, including a 1 in 10 spring crossing.

It is calculated that by standardisation of turnout costs on running lines have dropped by 10 per cent and in marshalling yards by anything between 25 and 40 per cent. It is considered that track maintenance costs as a whole

Tractor engaged in shunting operations in a Victorian Railways goods yard

might be reduced to 5 per cent as the result of general standardisation. Orders can be fulfilled by makers in 30 days or less, as compared with 120 days or even more with "custom-built" track components.

CHILE

Tunnel Under the Andes

The State Railways are planning the world's longest railway tunnel under the Andes, at a cost of £5,000,000. It will be 16 miles long, four miles longer than the Simplon tunnel between Italy and Switzerland, which recently celebrated its 50th anniversary as the world's longest.

The new tunnel will reduce by 40 miles the present rail link of 115 miles between Santiago, the capital, and Valparaiso, the chief port.

When the present railway was laid some 100 years ago, the high Andean range between the two cities constituted an almost insurmountable barrier, and the tracks had to make a "U" turn north and around the chain. Estimated savings of £375,000 a year in operating costs are envisaged, and savings on wear of rail equipment are expected to amount to £88,000 a year. Running time between the two cities will be reduced by 1½ hr.

ARGENTINA

Railway Equipment Deliveries

Consignments of equipment and materials for the railways, acquired in Britain by a special purchasing commission led by Mr. Joaquín Mainer, Vice-President of the Argentine State Railways, have now begun to arrive in Argentina.

These purchases were made possible by the granting of a credit of £3,500,000 to the State Railways by a banking consortium headed by Baring Brothers & Co. Ltd., London. Facilities granted by the manufacturers subsequently increased the value of goods which could be bought to £5,000,000.

The chief purpose of the special commission was to acquire materials for the repair and modernisation of steam locomotives. Now that their primary object has been achieved and supplies are beginning to arrive, the commission has been wound up.

EGYPT

Bridge Over Nile at Helwan

The last section of the 2,690-ft. rail and road bridge over the Nile at Helwan is reported to have been placed in position. The bridge is due to be finished by July 23, the National Day of the Egyptian Republic. It is 40 ft. wide. It carries a railway track, a roadway, and two pavements; and has been designed so that additional railway lines and 10-ft. wide road can be built outside the main supports on either side. The work has been done with technical help from the Hungarian Government.

Even at the peak of the flood period navigation will be possible. Some of the main supports have been sunk nearly 100 ft. into the river bed.

ITALY

Ferrovie Nord Milano in 1957

The Ferrovie Nord Milano, the most important privately-owned railway company in Northern Italy, of which the standard-gauge electrified system extends between Milan and the lake country along the Swiss frontier and as far west as Novara, deals mainly with Milan suburban traffic in the area. The company also operates a number of road services. Train-km. in 1957 totalled 5,772,524, 1·3 per cent more than in 1956. Passenger-km. fell to 993,505,766, 1·9 per cent less than for the previous year. This contraction is stated to be caused in part by the increasing use of private road transport. The company's road services totalled 1,686,343 km. in 1957, a rise of 14 per cent compared with 1956.

CZECHOSLOVAKIA

Railway Traffic in 1957

Railway traffic in Czechoslovakia showed a further expansion in 1957. The number of passengers rose to 600,300,000 from 589,200,000 in 1956, and goods traffic totalled 159,857,000 *tonnes*, 7 per cent more than in 1956. Wagon turn-round at 4·34 days was somewhat lower than in 1956 (4·35). As in previous years, more pasengers were carried by road services than by the railways. Road passengers totalled 893,700,000. Railway passenger transport has been rapidly losing ground in the past three years. Goods conveyed by road totalled 109,015,000 *tonnes* in 1957, against 89,768,000 in 1956.

JUGOSLAVIA

Traffic in 1957

After the fall in the passenger traffic in 1956 the number of passengers carried in 1957 rose to 170,538,000, approximately 7 per cent more than in the previous year.

The volume of goods traffic, at 56,595,000 *tonnes*, was 8½ per cent higher than in 1956. Loadings rose to 52,854,000 *tonnes*, of which internal traffic accounted for 50,762,000,000; exports for 2,092,000. Import traffic was higher at 1,399,000 *tonnes* (1,228,000) but transit traffic decreased to 2,342,000 from 2,759,000 *tonnes* in 1956. Coal constituted the largest single item of loadings, followed by timber, ores and non-ferrous metals, and agricultural produce.

Publications Received

L'Année Ferroviaire, 1958. Paris 6e.: Librairie Plon, 8, Rue Garancière. 9 in. by 5¾ in. 236 pp. Illustrated with maps and diagrams. No price stated.—This, the 12th of these annuals, is divided as usual into two parts. This year the first part is devoted to articles on the different themes of the European railways' stands at the Brussels Exhibition. Monsieur Louis Armand, President of the International Union of Railways and a former Director General of the French National Railways, contributes a preface in which he ably reviews some world railway problems. Monsieur Charles Boyaux, the present Director General of the S.N.C.F., shows in an article how railways in many countries have modernised their motive power and rolling stock, and other plant, and their methods; Signor Severo Rissone, Director General of the Italian State Railways, discusses the part played by railways in economic affairs and various social questions, including employment of railway staff; and Monsieur Maurice de Vos, Director General of the Belgian National Railways, describes briefly the rôle of the various European international railway organisations and their achievement in effecting improvements in transport. The second part consists of a statistical review of the S.N.C.F. in 1957, and of some of the world's principal railways in 1956, with chapters on technical developments in France. A final section describes some of the rolling stock exhibits at the Brussels Exhibition. The brief descriptions of S.N.C.F. diesel and electric locomotives and rolling stock are useful for reference purposes.

Thomas Telford. By L.T.C. Rolt. London: Longmans, Green & Co. Ltd., 6 & 7, Clifford Street, W.1. 9 in. × 6 in. 211 pp. + 12 pp. illus. Price 25s.—During his 77 years of life (1757-1834) Thomas Telford exerted a world-wide and outstanding influence on civil engineering, and, in fact, his career marked the rise of the modern profession. He was invited to become the first President of the Institution of Civil Engineers, an office he accepted in March, 1820. His work was in the era immediately before the spread of public railways, but his activities in the spheres of canals, harbours, roads, and bridges were extensive and lasting. Telford was appointed Consulting Engineer to the Exchequer Loan Commissioners in 1817, and, as such, advised on various early railway schemes seeking Government financial help. His association with canals and roads was too intimate, however, for him to become closely associated with railways; in fact, his views tended towards mechanical land transport by steam carriage on good roads. Mr. Rolt has told well the story of the principal engineering achievements of this Scottish shepherd's son who died unmarried and left few personal papers upon which to form an estimate of his remarkable personality.

Seventeenth International Railway Congress

Handling Less-than-Wagon-Load Consignments

Arrangement and working of depots: liaison between depots and delivery services: problems of palletisation

THE handling of smalls traffic by railways has assumed great importance in recent years, as such traffic is easily carried by road hauliers and is therefore subject to strong competition. It was therefore fitting that methods of handling this traffic should be the subject of Question 5 on the agenda of the International Railway Congress Association at its session in Madrid this year.

The reporter on the answers to this question is Mr. J. Dorjee, General Manager of Van Gend & Loos Limited (Holland), the general transport and forwarding subsidiary of the Netherlands Railways Company. Replies received cover practice in Great Britain, Ceylon, East Africa, Eire, India, Malaya, the Netherlands, New Zealand, Norway, South Africa, Russia, Sweden, and the U.S.A. Mr. Dorjee has produced a particularly full and well-illustrated report on his subject, not the least valuable part of which is the section dealing with palletisation.

Parcels Traffic

The consensus of opinion on the characteristics of parcels traffic is that it is understood to consist of consignments which are less in volume or weight than a wagon-load. The differences between administrations are concerned mainly with the character and extent of further limitations on consignments or packages. Limitations are to a considerable extent imposed by the consignor himself in his own interest, according to his calculations of parcels and wagon-load charges, the cost of loading and unloading wagons, and the cost of collection and delivery services. The East African Railways drew particular attention in their reply to the special rates offered as an inducement to traders to consign traffic in full wagon-loads. Many other railways offer similar inducements. In India, consignors are encouraged to arrange joint consignments to make up wagon-loads.

Where limitations are imposed they vary widely, but generally relate to volume, dimensions, weight, and ease or otherwise of handling. As is to be expected, a maximum weight is the most usual limitation, but varies from 10 cwt. up to 20 tons. In the case of the heavier consignments, there are often stipulations that the package shall not pass through depots or that it is to be loaded by the consignor and unloaded by the consignee. The heaviest packages are accepted by the South African Railways—20 tons—but special provision has to be made in advance for the carriage of a particular package. A limitation is often placed on size in order to ensure that packages can pass through normal wagon doors and be handled with normal depot equipment.

The importance of parcels traffic varies greatly from administration to administration. In Russia, parcels traffic is only 0·3 per cent of the total freight tonnage, whereas in Eire it is 20 per cent. In Britain, Norway, Sweden, and the U.S.A., parcels traffic is declining, partly because of road competition and partly because more traffic is being consolidated into wagon-loads. In East and South Africa, Malaya, New Zealand, and Russia, traffic is improving, and in the Netherlands and India it is retaining its position.

In asking about the organisation of the despatch of parcels traffic, the questionnaire defined the "classical" organisation as one in which the country served is divided into regions, each served from a central depot by train or road vehicle for collecting and distributing freight. In practice, the division has been found to be not between "classical" and "non-classical" but between regular and "optional" runnings, "optional" wagon runnings being those authorised as they are required to deal with traffic offering. The organisation in Britain and the Netherlands is held to fall within the "classical" definition. As with Eire, Norway, and the U.S.A., regular services are the usual pattern, with optional running as required subject to minimum weight per wagon of 1 ton in Britain and 2·5-3 tons in the U.S.A. Whereas in Britain and the U.S.A. "optional" workings are in general to destinations to which there is no regular service, in the Netherlands the term is considered to apply to additional wagons running on regularly-served routes.

The East African, South African, Malayan, and New Zealand railways run direct wagons to all destinations when a sufficient load can be formed. Otherwise, packages are consigned to a transhipment depot. The Swedish State Railways adopt a complicated system involving three categories of parcels wagons. These are:—"A"—for freight to the destination of the wagon "B"—for freight to destination and also freight for transhipment at wagon destination point; and "C"—for freight to be loaded and/or unloaded en route from wagons coupled to regular trains on certain sections. The "C" wagons seem to correspond to pick-up freight services in Britain. Of the 2,500-3,000 wagons used daily for parcels traffic on the Swedish State Railways system, 8 per cent are in category "A," 52 per cent in category "B," and 40 per cent in category "C." A system closely approaching the "classical" is used in Russia, where a load minimum of 7 tons is required for a direct two-axle wagon, or 16 tons for a four-axle wagon, and 9 and 20 tons respectively for two- and four-axle transhipment wagons. Lower loads are authorised on routes defined as "slack" by the Ministry of Surface Transport. Transhipment wagons may tranship at more than one point. There are also wagons for collection and distribution. The Indian railways also recognise three categories of parcels-wagon.

Consignment Procedure

The requirements of the various railways differ little where consignment procedure is concerned. All require some form of waybill or consignment note—in the case of Russia a form giving very full particulars must be completed. Labelling and the checking of consignment notes varies little from railway to railway. Route indications, however, vary widely from simple code characters on packages to detailed stamping and special labelling. On the waybill there may be serial numbers for identifying a consignment, date stamp, the name of the "group head" or zonal station or depot, the destination station, journey schedule, and so on. Little clerical work seems to be done while freight is in transit, but the freight and documents are confronted at some stage of the transit in most instances.

Freight Depots

The location of older depots is attributed to historical or "coincidental" factors in most cases, and the locations of new depots are described as dependent on town or regional planning, in which the railways play their part.

From the information given, Mr. Dorjee discerns two main types of depot—"sectional," with separate installations for incoming, outgoing, and transit traffic, and "combined," in which the same installations deal with all three types of traffic. The sectional type is the more usual, particularly where large depots are concerned. All administrations handle incoming traffic on a raised platform, and most use a raised platform for outgoing traffic also. British Railways are almost alone in using the cartage unit, or perambulation, system in outgoing sheds, though the New Zealand railways make some use of the system.

Few general conclusions can be reached about the shape, area, and division of the handling platforms, but the following emerge as the principal factors concerned:—

(*a*) The volume of freight to be handled.

(*b*) The ratio of incoming, outgoing, and transhipment traffic.
(*c*) The number of destinations.
(*d*) The number of delivery zones.
(*e*) The method of working.
(*f*) The attempts to reduce transport distances.
(*g*) The despatch system.
(*h*) The amount of variation of design in wagons handled.
(*i*) The existence or otherwise of the railway's own collection and delivery services.

These factors, in most cases, are interdependent. The general tendency is for long platforms to be used for incoming and transhipment traffic and short platforms for outgoing traffic. In Russia, almost half the parcels traffic passing through depots is in containers, and special container depots have been developed and built on a large scale.

Handling Methods

There are considerable differences in the ways in which consignments are handled. For example, a road vehicle entering a depot may unload at one point, leaving sorting to be carried out later, or at several points, in which latter case a certain amount of pre-sorting has been done. This variation in unloading affects the distances which consignments have to be moved inside the depot.

Checks on consignments vary from a comparison of the number of packages with the number shown in the documents to the entering of all goods in an acceptance book. Most administrations have facilities for weighing consignments on acceptance but actual weighing seems to depend on whether the consignor has entered the weight on the documents. In East Africa, Eire, and India all tendered packages are weighed, but in the Netherlands, South Africa, and New Zealand only packages the weight of which has not been declared by the consignor are weighed. In Russia, the consignor declares the weight. Most consignors in Britain declare the weight of packages but facilities are provided for weighing where this has not already been done and also for test weighing.

At transhipment stations, some administrations make no check on consignments, but others register them. On receipt at the destination station, checking is carried out in most cases while the wagon is being unloaded, or, on one railway, as the delivery van is loaded.

Once received by the railway, further handling of packages in the depot depends very much on the equipment employed. Palletisation, in particular, has revolutionised the movement of freight within a depot. In Russia, the goods are stowed into sorting bays—on pallets if the depot concerned is mechanised. In Malaya, the handling of goods in the sheds is performed by contract labour, and the Malayan Railway seems to exert no influence on the methods of working used. Loading direct into wagons is fairly general where this is possible, but a good deal of labouring is needed at most railway depots.

In India, the consignment is transferred to the wagon earmarked for the journey by porters under the supervision of a loading clerk. The clerk, while supervising loading, makes out a list of the packages in the wagon. A copy of this list, or a summary, is placed in the wagon before the vehicle is sealed and sent off.

The Netherlands Railways distinguish between goods originating from "palletpool consignors," "labellers," and "non-labellers." The goods of palletpool consignors are labelled and tendered to the railways on pallets or in box pallets. They are loaded from the vehicle by a hand fork truck and carried to an assembly point where the pallets are placed in accordance with the fork-lift truck driver who will deal with them. Each fork-lift truck driver is responsible for a given number of wagons and his duty is to collect pallets from the assembly point and stow them inside a wagon. Pallets with loads for mixed destinations are carried to a sorting area. Pallets from the sorting area are carried by the fork-lift trucks to the wagons and loaded.

Consignments from "labellers" are palletised on arrival at the depot and are then handled as are those of palletpool consignors. Goods originating from "non-labellers" are palletised after being weighed, and so on, and are then treated in the same way as other freight.

Sorting

Little information about sorting was given by most administrations, but the Netherlands Railways state that in their depots they have some 500 box pallets arranged, corresponding with the group (rural) stations. To conserve space, the pallets are stacked two rows high, with the upper row set slightly back from the lower to give easier access. In Russia, sorting is carried out at regional and sorting stations on a sorting platform, on which sections are reserved for various destinations. The goods are then loaded into wagons drawn up against their respective sections.

On arrival at the destination stations, parcels are often unloaded direct to delivery vehicles. Other parcels are placed in a section of the shed reserved for their final destination. Mechanised aids, such as conveyors or powered platform trucks, are sometimes used, but barrowing is frequently used, particularly in the older sheds. Fork-lift trucks are used for unloading palletised parcels.

Very little information was received about transhipment methods, presumably because the techniques are similar to those used for initial loading or unloading.

Except in the Netherlands the carriage of parcels loaded, still on pallets, into wagons, seems to be in the very earliest stages. In the Netherlands, however, all parcels are carried in this manner, the administration claiming that by this method practically all the space available in a wagon can be used and loading and unloading can be accelerated. The loading system adopted divides the wagon floor space into four by a line down the centre of the wagon and another across from side to side. One of these sections is used for unpalletisable goods such as perambulators and bicycles, and beside them are placed, in the next section, box pallets. The other end of the wagon is loaded with stacked pallets, arranged according to fixed rules—heavy at the bottom, light at the top, and so on. When the wagon is almost full, the pallets are placed in the remaining space by the door in the middle of the wagon. These box pallets steady the rest of the load.

Collection and Delivery Services

Of the 12 administrations which answered the questions, five have no collection and delivery service of their own. Other administrations use road vehicles carrying anything from 30 cwt. to 15 tons. Some vehicles are fitted with 30-cwt. cranes for loading and unloading the parcels.

The cartage vehicles are sometimes loaded by the depot staff, either according to standing instructions or as directed by the driver. When apportioning responsibility between the depot staff and the delivery service in cases where goods are damaged or incomplete on delivery, the general principle is that the party which last accepted the goods without protest is responsible.

Palletisation

Although palletisation is used in depots of some administrations, with the notable exception of the Netherlands Railways, little use has been made by railways of pallets for throughout transit of parcels. This position, Mr. Dorjee believes, is slowly changing. Of late years, development tends towards general palletisation, to be understood as "palletisation covering the whole chain of transport, from one end to the other, and including both consignor and consignee." As most consignors receive only very small lots at a time there is, however, little point in transporting consignments still on pallets to the consignee's premises.

Most parcels traffic can be palletised and palletisation opens the door to mechanisation. General palletisation, however, has an unfavourable effect on the ratio of loading of the wagons. The extent of this effect is connected with the density of transport and the size of the average load. The influence of this factor on the economic results varies with the distance over which the load has to be transported, but palletisation does not seem to be particularly profitable where distances of 180 miles and up are concerned.

Standardisation and interchangeability of pallets are necessary to reduce the clerical and control work involved in a pallet pool. Palletisation, Mr. Dorjee states, is the most obvious form of mechanisation and it will undoubtedly expand more and more in the near future.

Developments on Czechoslovak State Railways

Installations and practice observed on a recent visit

AFTER visits by Czechoslovakian representatives to this country, and at the invitation of the Minister of Transport in Czechoslovakia, two officers of British Railways, Western Region, Mr. E. C. Cookson, Assistant Civil Engineer, and Mr. S. A. S. Smith, Manager, Swindon Locomotive Works, recently visited that country. They were given facilities for visiting a number of installations and for discussions with railway officers at headquarters and in the districts. The following are some of the notes on their observations.

Freight Working

The Zizkov freight terminal at Prague, dealing with traffic from north, south and east of the capital, has a remarkably spacious yard; it is designed to divert traffic from the neighbourhoods of the passenger stations. Its general layout is shown in Fig. 1. The central covered platform has three lifts connecting with bridges to the upper floors of the warehouses on each side. Under one of the latter are a refrigeration plant and cold storage rooms.

No containers, as known in this country, were seen, but there were many small open-boxes on wheels conveying merchandise from vehicles straight into the warehouse and stored as such. There was only palletisation incorporating small hand mechanical trucks. It is noteworthy that no private individual can forward goods except through a State agent, also that as all road, rail and water transport is owned by the State there is a complete monopoly.

Rail traffic is received and passed over a hump into sorting sidings, whence it is transferred—by lines not shown on the diagram—to either the coal yard, the mileage sidings or to the holding sidings for the warehouses. The holding sidings are used in reverse for outgoing trains. The terminal was handling about 600 wagons daily but its maximum capacity is some 1,200 wagons.

Coal wagons are worked to and from a tippler by means of an endless moving wire rope to which a tow-chain is attached by a simple form of lever grip. From the tippler pit the coal is carried by conveyor belt to overhead hoppers for loading into road vehicles. Surplus coal is dumped and later loaded into lorries by an American Mole-type electric conveyor; a smaller Czechoslovak version of this was also seen. In the tippler the end-discharging wagons are supported at one end and the rear end is raised by hydraulic ram apparatus.

Lieben (Prague) Diesel Depot

The diesel maintenance shed and shop at Lieben, Prague, were also visited. Both are 100 m. long, situated adjoining one another, and double-ended. The six tracks in the shed have full-length pits, high-pressure water and air supplies—as well as 24-V. electric current for hand lamps—and heating panels. On one side runs a full-length office block and on the other is the repair shop. Over two of the three roads in the latter are a 25-ton and a 5-ton gantry crane, and there is another 5-ton one over the third track. In the longitudinal centre of each track is a bogie-drop divided into two sections so that either the full 27 ft. or an 18-ft. part of it, can be used. Both inside and outside inspection pits are provided, the rails being carried on 12-in. sq. concrete pillars at 2-ft. intervals. These features are shown in Figs. 2 and 3.

Throughout the outer side of this building is a machine shop and over it other shops, except abreast of the bogie-drops where the ground-floor shop extends up to the roof as a well, to enable equipment to be hoisted to the upper shops.

Stock dealt with at this depot includes small diesel-mechanical and also a few petrol-driven railcars, diesel-electric railcars, four-car diesel units with electric drive but incorporating a hydraulic coupling, and small 450-h.p. diesel-electric shunters. A 600-h.p. six-wheel diesel-electric locomotive, not maintained at that depot, was also seen there; it had transmission to two axles. All diesel repairs up to but excluding complete general overhaul are undertaken at Lieben.

Long-Rail Welding

Rails were seen being welded *in situ* to form 5-km. lengths between breather-switches. During an 8-hr. line-occupation 300 m. of track is prepared, welded and restored for traffic at normal speed. Six two-men welding teams with trolley-mounted electric arc welding sets and butane-propane gas cylinders carry out the work. The rails are pre-heated with the gas to 325° C., and a copper plate is placed between a jig and the foot of the rail, wedged tight to the foot, and the welder builds up in shallow runs up to the foot of the web. Copper plates are then applied to each side of the web to enable the web to be built up. Similar plates are applied to the underside of the head for its building up. Finally the copper plates are removed and a cover-weld made. The electrodes used varied, but were understood to be of

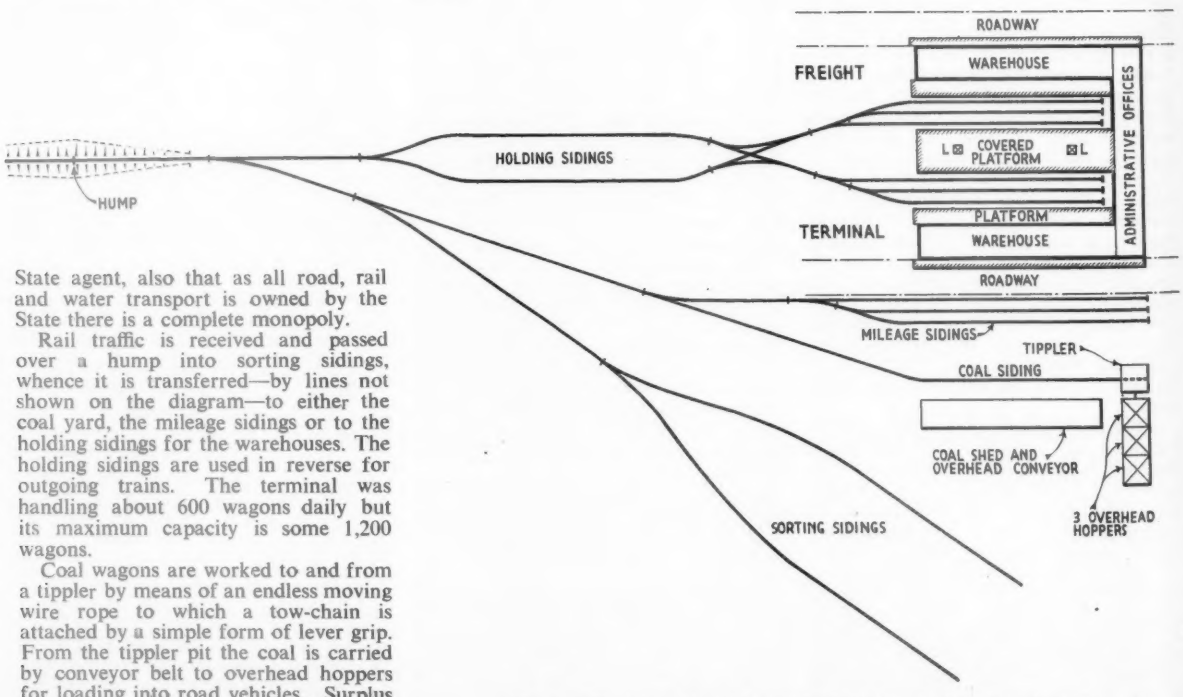


Fig. 1—Skeleton plan of layout at Zizkov freight terminal, Prague

similar quality to that of the rails welded. Great care was taken in chipping, slag cleaning, and making shallow welds. Each team completes two pairs of joints during the 8-hr occupation; joints are post-heated to 650° C.

Concrete sleepers are being made and used but are not popular with the Czechoslovak authorities, who seem rather surprisingly, to be importing hardwood sleepers. Steel sleepers also are used. The standard length of rail is 25 m. (82 ft.) which seems abnormal. Sleeper spacing is 60 cm. (2 ft.). At insulated rail-joints there is a fibre end-post with a fibre channel to each fish-plate and fibre inserts in the enlarged fishbolt holes which appear to give little trouble. The Permali type of joint is not considered suitable for speeds of over about 40 m.p.h. Pre-assembled re-laying appears to be carried out extensively, generally with the portal-frame equipment used on the French railways.

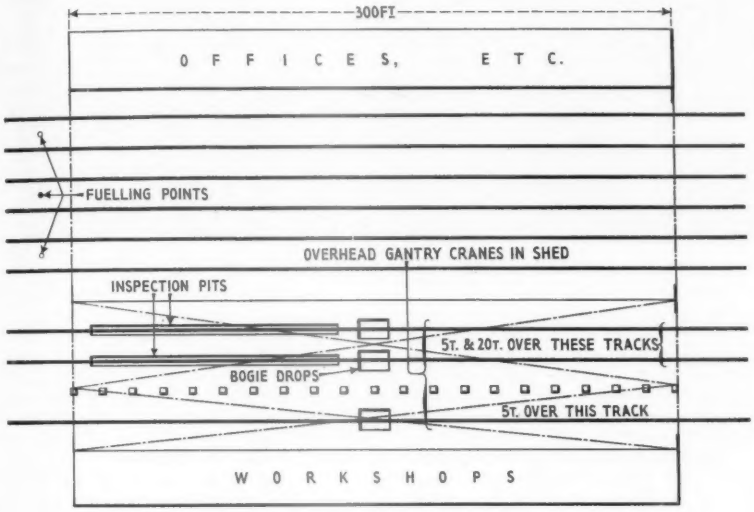

300FT
O F F I C E S, E T C.
FUELLING POINTS
OVERHEAD GANTRY CRANES IN SHED
INSPECTION PITS
5T. & 20T. OVER THESE TRACKS
BOGIE DROPS
5T. OVER THIS TRACK
W O R K S H O P S

Fig. 2—Plan of Lieben (Prague) diesel maintenance depot

Point and Signal Control

At the important junction of Banska Bystrica where track and platform facilities are simple, the visitors were shown the signal control panel and relay equipment of Russian origin; the point motors and outside equipment are of Czech design. The panel appeared to conform to normal practice with platform route-occupation indications. There were three indicator lights on each points control giving normal and reverse; a flashing light appeared if the points failed to close properly. An unmanned lifting-pole level-crossing barrier is controlled from the panel, though it is right away from the station and quite invisible from the back room housing the control, whence no trains even can be seen. Tolerances permitted on the closing of switches were 2 mm. for fast-running junctions but 4 mm. for slow-running. Facing points were equipped with positive cam-operated locks.

In the control-room were two tables each with a properly-prepared diagram of the train service, different types of trains being shown by light and heavy lines. The diagrams were under glass tops to the tables so that the controller could superimpose a piece of paper and slide it along as necessary to find an appropriate path for a train running out of course.

A 25-m.-span pre-stressed concrete road underbridge was inspected as it is a complicated structure consisting, in fact, of two bridges carrying two pairs of converging tracks at a junction. The main beams are clear of each other at the V, but the decking is complicated.

Motive Power

Four types of single-unit railcar and two types of multiple-unit diesel train are in service as follows:—

SINGLE-UNIT RAILCARS

(*a*) M.131$_1$, 150 h.p., mechanical transmission two axles (1-A)
(*b*) (i) M.262$_0$, 410 h.p., electric transmission four axles (2 B O); and (ii) M.284$_1$, 2 × 320 h.p., electric transmission four axles (1A-A1)
(*c*) M.275$_1$, 450 h.p., mechanical transmission (this is almost certainly mechanical-hydraulic) five axles (1-B-2)

MULTIPLE-UNIT DIESEL TRAINS

(*a*) Three-car unit M.296$_0$ (two power cars), 2 × 410 h.p., electric transmission (1-A-2-A-1)
(*b*) Three car-unit M.495$_0$ (two power cars), 2 × 450 h.p., electric transmission. Wheel arrangement 1 B-2-2-2-2-B 1

Diesel Locomotives

Four types of diesel locomotive are given. The asterisk against (*b*), (*c*) and (*d*) indicates that the wheel arrangement is not clearly defined.

(*a*) Type T.333$_0$, 320 h.p., mechanical transmission three axles (C)
(*b*) Type T.434$_0$, 700 h.p., electric transmission three axles (A 1 A or C)*
(*c*) Type T.435$_0$, 750 h.p., electric transmission three axles (A 1 A or C)*
(*d*) Type T.455, 600 h.p., electric transmission three axles (A 1 A or C)*

Electric Locomotives

On the 3,000 V. d.c. electrified sections Bo-Bo locomotives are used, of 2,850 h.p., known as Type E.499.

Track

Two sections of rail are in general use. Rail shape "T" has a height of 150 mm., breadth of foot 128 mm., and thickness of the web 15 mm.; the radius of the top table is 300 mm., corner radius being 14 mm.; the breadth of the head is 65·5 mm. at the top and 68 mm. at the base. Rail shape "A" has a height of 140 mm., thickness of the web is 14 mm., radius of the top table is 200 mm., corner radius 14 mm., with a breadth of head 68 mm. The weight of shape "T" is 49·71 kg. per metre, and that of shape "A" 44·35 kg. per metre.

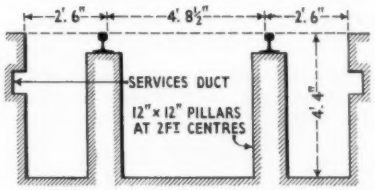


Fig. 3—Section through pillars of inspection pits at Lieben depot

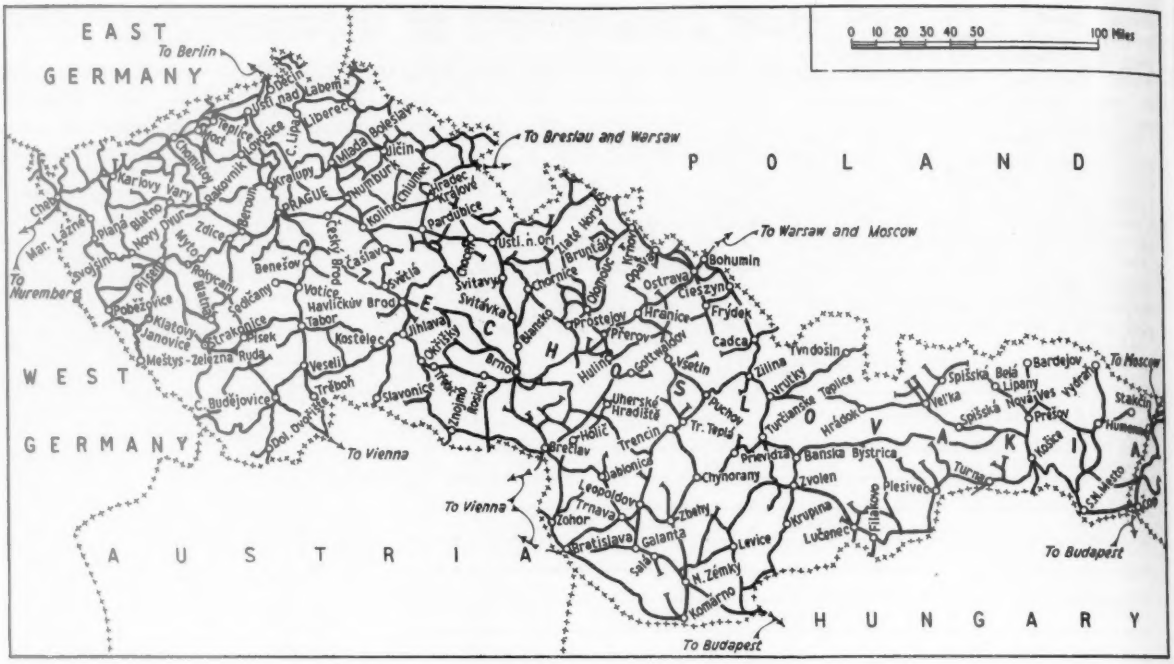
So far as the chemical composition of rail steel is concerned, Martin steel and Thomas steel seem to be used; the composition of Martin steel is as follows:—

Quality of steel	C Carbon	Mn Manganese	Si Silicon	P Phosphorus	S Sulphate
10650	0·46–0·54	0·8 –1·0	0·22–0·35	0·05	0·05
10750	0·50–0·56	0·85–1·05	0·22–0·35	0·05	0·05
10800	0·54–0·60	0·95–1·15	0·22–0·35	0·05	0·05

According to the specification the highest percentage of manganese is 1·4.

The normal radius of vehicle wheels ranges between 470 and 500 mm. with a minimum radius of 415 mm. The present maximum axle load is 21 tons, and on rails with steel strength of 65 kg. per mm.^{2} this causes structural disturbance in the rail-head material, and damage known as "frogs" occurs, i.e. "shelling." These damaged spots are a source of frequent breaking of rails.

In view of this, a steel of higher strength is to be used, namely, 75 kg. per mm.^{2} minimum. The main problem is apparently connected with the use of Martin steel, the strength of Thomas steel being about 70 kg. per mm.^{2}. A higher strength of steel is



Railways in Czechoslovakia, showing principal frontier points

under consideration because provision is being made in the future for raising the axle load to 24 tons.

Marshalling Yards

There are both flat yards and gravitation yards in use in Czechoslovakia and in some cases the systems are mixed, *i.e.* there are groups of sidings graded sufficiently for gravitation and some rail groups for the maximum gradient permissible for use by shunting engine. At existing marshalling yards, where there is no mechanisation, humps are low and gradients are not steep to prevent unduly high speeds of vehicles. These gradients are from 1 in 33½ to 1 in 40.

For new projects it is proposed that leading from the reception sidings, which are usually level, there should be a rising gradient of 1 in 50 to the hump to facilitate the squeezing up of vehicles for uncoupling.

After the hump there is a down gradient of 1 in 16 to 1 in 20, followed by a down gradient of 1 in 62 to 1 in 100, then level. The outward sidings have a gradient of 1 in 400 max. The length of reception sidings is governed by the length of train, to which is added 30 m. on account of the gradient and 20-25 m. for the pilot engine. The length of reception sidings is governed by the length of train, to which is added 30 m. on account of the gradient and 20-25 m. for the pilot engine. The length of reception sidings is, therefore, 50 m. longer than the length of train.

The useful length of the sorting sidings is made up of the length of a train, to which must be added the length of two engines. The length of a train is governed by the length of crossing loops at stations. All vehicles are fitted with roller bearings and oil axleboxes. Nearly all trains are fitted with continuous air brakes.

Summer and winter humps are rarely used and where they do exist are only in the older yards. In new projects a uniform height of hump is adopted even in the event of provision being made for two hump tracks.

In the reception sidings, the trains are prepared for uncoupling by disconnection of air pipes and loosening of screwed couplings. The uncoupling is effected by a shunting pole as the rake nears the top of the hump.

Rail Brakes

Where existing marshalling yards are fitted with rail brakes, there is only one set; for new projects, primary, secondary, and tertiary brakes are provided in view of the introduction of heavy four-axle vehicles. Rail brakes are either hydraulic or electro-pneumatic.

The maximum distance between wheels of vehicles which can be passed over the hump is 13 m. with a vertical curve on the hump of 200 m., and 16-17 m. with a vertical curve on the hump of 300 m. This appears to be more a criterion than the relative position of switches.

The automatic weighing of vehicles is only provided for where the weighing of all or a majority of vehicles is necessary, and where marshalling speeds do not exceed 0·7—0·8 m. per sec.

The expedient of measuring the speed of vehicles on the hump is not yet used in Czechoslovakia, nor the automatic control of brakes. Control of switching is automatic.

Air brakes are tested before a train leaves the sorting sidings and outward sidings if a train is to be despatched direct. Permanent compressors are installed for the purpose.

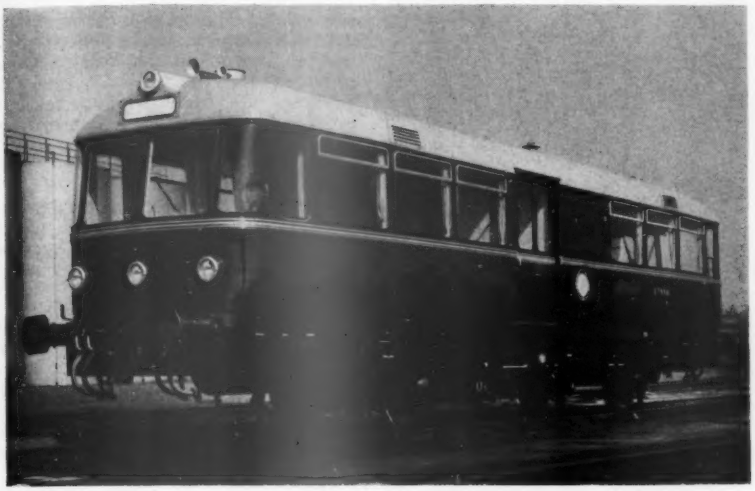
No provision is made for ascertaining the occupation of the sorting sidings by means of track circuit.

SCOPE OF FACTORY EXHIBITION TO BE EXTENDED.—The Factory Equipment Exhibition to be held next year at Earls Court, London, will be extended from six to ten days and its scope will be widened to include answers to the problem of noise. It will be open from April 7-17, 1959. Attendance this year at the exhibition was a 16 per cent increase. The Thermal Insulation Exhibition, which was introduced for the first time this year, will next year include exhibits of the latest materials and methods for noise reduction in factories and offices.

NEW ROOF AWNINGS AND COLD CATHODE LIGHTING AT DONCASTER STATION, EASTERN REGION.—Awning-type roofs have been built over platforms 4, 5 and 6 and cold cathode electric lighting has been installed at Doncaster Station, British Railways, Eastern Region. The new platform roofs are of glass and asbestos cement decking on steel framing, supported by steel stanchions and cross members. The cold cathode lighting fittings incorporate the station name in the mask of the light fitting. The roof awnings were designed and erected under the general direction of Mr. A. K. Terris, Chief Civil Engineer, Eastern Region. The general contractor was Wm. Proctor & Sons Ltd., of Sheffield, and the contractors for the steelwork were the California Engineering Co. Ltd., of Bury. The lighting installation was carried out under the direction of Mr. K. J. Cook, Chief Mechanical & Electrical Engineer, Eastern Region.

Diesel Railbuses for British Railways

German-built 150-h.p. 56-seat four-wheel vehicles



One of five 150-h.p. railbuses for British Railways, built by W.M.D.

BRITISH Railways have taken delivery of the five 150-h.p. four-wheel railbuses built by Waggon und Maschinenbau G.m.b.H. of Donauwoerth, Germany. These represent the second of this type of vehicle of five designs ordered from various manufacturers for trial on rural lines in this country. The first railbus of the order to be delivered, that built by A.C. Cars Limited, was described in our February 21 issue.

The bodies of the railbuses have been designed to British Railways requirements and the underframe and power equipment, transmission and brake gear are generally similar to the Uerdingen-type of railbus at present running on the German Federal Railway, of which there are some 700 vehicles in service. Wherever possible standard production components have been used in order to facilitate the supply of replacement parts as necessary. The vehicles tare some 15 tons which gives a power: weight ratio of 10 h.p. per ton. Accommodation is provided for 56 seated passengers and about 40 standing.

Leading dimensions are as follow:—

	ft.	in.
Length over buffers	45	9½
Length over body	41	10
Width over body	8	8⅜
Inside width of body	8	4
Overall height	11	9¼
Height to floor	4	0
Height, floor to ceiling	7	8¼
Wheelbase	19	8½
Diameter of wheels	3	3⅜
Max. designed speed	55 m.p.h.	

The body contour has been designed to comply with the British Railways C 1 loading gauge. A through-length underframe to carry buffing and drag forces is provided, built up from welded flanged plates.

The underframe consists of channel-shaped cross-beams which are welded to the longitudinal girders. Stresses produced by the power equipment are transferred to the longitudinal girders by parallel and transverse braces of flanged plates.

Additional rigidity is given by a corrugated plate floor connected to the underframe. This corrugated plate is welded to the longitudinal and cross beams by stitch welding. A 22·8-in. deep side apron is welded to the solebars to provide an extension to the bodyside panels.

The body framing is formed as a light steel structure, the bodyside pillars are Z-section pressings. The side and roof panels of light alloy sheets are riveted to the body framing. The roof plates are crimped longitudinally to provide maximum rigidity. End sheets are of light gauge steel. The body is suspended elastically and swinging from four points of the running bogie frame. The vertical deflection of the body is absorbed by hydraulic shock absorbers, as likewise are the side vibrations.

Underframe

The underframe consists of two longitudinal solebars and two headstocks, of rolled sections, welded together. Further longitudinal and transverse members are fitted as required to carry the diesel-mechanical power transmission equipment and so on. The SKF axleboxes are carried in adjustable guides of the Ferrozell type, having a longitudinal and a transverse clearance of 0·5 mm. each. Ferrozell is a wear-resisting synthetic material which requires no lubrication and has been used on the German Federal Railway for a number of years. The axle clearance of 2 × 0·5 mm., it is stated, enables smoother running when negotiating curves than a rigid axle allows.

The wheelsets are of light weight with double-waved wheel discs; the axles are carried by six-plate laminated springs with adjustable spring screws on the underframe. Each axle is fitted with two brake discs by which the brake is applied through brake shoes having a lining of synthetic material.

Power Equipment

The engine is a Bussing six-cylinder horizontal diesel engine which develops 150-b.h.p. at 1,900 r.p.m. The drive is

Arrangement of driving compartment with separate cab, and of seating

One of two driving positions of railbus, showing layout of controls

through a fluid flywheel to a ZF six-speed electro-mechanical gearbox by cardan shaft. The gear steps of the gearbox are selected electrically and operated by electro-magnetic multiple-disc clutches.

Transmission

Drive from the gearbox to final drive is again by cardan shaft, final drive torque being transmitted to the frame by means of a flexibly-mounted torque arm. Forward and reverse gears are mounted in the Gweinder final drive unit and selection is operated pneumatically by a driver-controlled valve. In the event of loss of air pressure the equipment is designed to allow selection by hand through a trap door in the floor.

The supply of fuel to the diesel engine is pneumatically regulated by a foot-operated valve installed in the driver's cab and by a governor fitted to the engine. In the case of failure of the pneumatic throttle motor, the engine can be controlled by a hand lever. A governor on the Bosch injection pump limits the speed when running idle. A push button is fitted on the driver's panel to enable the driver to stop the engine electro-pneumatically.

Engine Cooling

The cooling water of the engine is passed through a cooling unit with hydraulic fan drive of Behr type mounted in the underframe; it is automatically kept within a limit of 70-80° C.

The air intake to the engine is via an exchangeable filter element of the Delbag type fitted in the vestibule. The exhaust is taken away by a pipe passing through the roof of the car, the pipe being insulated against heat and sound.

The floor, bodysides and roof are fitted with insulation materials to protect against heat and sound. The interior is lined with plywood panels having a clear polish, the ceilings being painted ivory. The front and body-side windows of safety glass are secured by rubber glazing material. The upper parts of the bodyside windows are hinged to provide a limited opening for ventilation; curtains are arranged at the bodyside windows, and sun visors are fitted at the driver's front window, against the direct rays of the sun.

The saloons are equipped with luggage racks running lengthwise above the windows. These are of light alloy construction with hemp mesh netting.

Seating Arrangement

The seating arrangement is two on one side of the coach and three on the other, giving a seating capacity of 56 seats, 28 in each saloon. The seats are constructed with spiral springs covered by rubberised hair and trimmed in green artificial leather. The seat backs are padded with rubberised hair and trimmed with an artificial leather.

The doors, which are situated almost centrally on each side of the body, are power-operated. They are under the control of the driver, but a push button is fitted above the doors to enable passengers to open the doors. In an emergency the doors can also be opened and closed by hand.

A luggage room is provided at each side of the car in the entrance vestibule. The header tank for the cooling water, the engine air inlet and filter, fire extinguisher and tool and medical cupboard are located in the luggage room through which the exhaust pipe passes. A letter rack and emergency ladder are fitted in the second luggage room.

Operating and driving controls are all located in the driving cab which is separated from the passenger accommodation and is fitted with a door. The driver's window is fitted with an electrically-operated windscreen wiper and sun visor. The window has a Schulz defroster, which is heated from a nozzle. An upholstered folding seat is provided for the driver. The rear windows are fitted with curtains to prevent light from the passenger compartments interfering with the driver's vision. A small extinguisher is located in each compartment.

At both ends of the car, a three-tone horn is fitted on the roof. The signal buzzers are operated electrically from the driving control panel.

Disc Brakes

The railbuses are equipped with Knorr automatic compressed air disc brakes. In addition to the compressed air brake equipment, an electro-pneumatic deadman's handle is arranged. The sanding gear is air-operated and controlled from each control panel at each end of the vehicle.

The 16 railbuses which remain on order for British Railways are as follow:—Bristol Commercial Vehicles Limited, 2; Park Royal Vehicles Limited, 5; A.C. Cars Limited, 4; D. Wickham & Co. Ltd., 5.

CHAMBERLAIN PLANT LIMITED NEW PREMISES.—Chamberlain Plant Limited, one of the Chamberlain group of companies, has moved to new works and offices at Crown Works, Southbury Road, Enfield, Middlesex. The company states that it would be interested in acquiring a good agency for contractors' plant, preferably in earth-moving equipment. Workshops and showrooms are available with sales and service facilities. Chamberlain Plant Limited will handle the sales of the Staffa range of mobile and shop cranes, the Jenbach diesel-driven compressor, and other items of contractors' plant.

DAY EXCURSIONS TO FRANCE AND BELGIUM.—"No passport" trips from London to France are to be run this summer by the Southern Region of British Railways, for the first time since the war. The first excusion will be on Whit Monday, May 26, from Victoria to Boulogne. Passengers will leave at 8.40 a.m. and will be due back, after 5½ hr. in France, at 10.30 p.m. The cost of the trip will be 45s. from Victoria or 30s. from Folkestone. Special identity cards for those not holding passports must be obtained at the same time as tickets on the day before the journey. A series of trips will be operated from London to Boulogne on Mondays to Fridays, throughout June, July, and August and most of September; the cost of these will be 60s. From June 30 to September 10, on Mondays, Tuesdays, and Wednesdays, the Southern Region will run whole-day trips to the Brussels Fair. Departure will be from Victoria at 11 p.m., with travel by the normal night service via Dover/Ostend, to arrive at Brussels at 7.50 a.m. next day. After a day in Brussels passengers leave shortly after 10 p.m. to arrive at Victoria at 7.15 a.m. The return fare London-Brussels, second class, will be £4 7s. 6d. Passports will be required.

RAILWAY NEWS SECTION

PERSONAL

Mr. Norman Quail, Commissioner, Victorian Government Railways, has been appointed Deputy Chairman of that system.

Mr. F. A. Dadge, Assistant Railway Accountant, Finance Department, British Transport Commission, who, as recorded in our May 16 issue, has been appointed Regional Accountant, Designate, North Eastern Region, British Railways, was born in Swindon. He entered the service of the Great Western Railway in 1924 in the Department of the Chief Accountant, Paddington. He subsequently served in the Swindon Audit Office from 1935 to 1940, where he was engaged on special work in connection with Government Control Agreements from 1940 until 1946, when he became Chief Auditor, Swindon. In 1949 he returned to Paddington as Head of the Ledger Section, and, in 1950, Assistant to the Chief Accountant. He became Senior Assistant to the Chief Accountant in 1951. From January to April, 1952, Mr. Dadge was loaned to the Railway Executive, and in the same year became Assistant Accountant, Western Region. He was appointed Assistant Director of Accounts at the British Transport Commission Headquarters in December, 1954. A year later, he was a member of a team of experts which investigated the organisation of the Rhodesia Railways. Mr. Dadge is Chairman of the Railway Statistics Committee and an Associate Member of the Society of Commercial Accountants.

Mr. S. K. Guha, Deputy General Manager (Works), Gorakhpur, North Eastern Railway of India, who, as recorded in our April 18 issue, has been appointed Director, Statistics, in the Ministry of Railways (Railway Board), New Delhi, graduated with honours in economics from the Presidency College, Calcutta, in 1927. From 1928 to 1931 Mr. Guha continued his studies at the London School of Economics, obtaining the Brunel Medal in 1931. He also received practical training with the then London Midland & Scottish Railway in traffic and commercial working. In 1932, Mr. Guha became Professor of Modern Economic Development & Administration (including transport) at the Sydenham College of Commerce & Economics and continued in that position until July, 1935. During this period he was an Examiner of Bombay University, where he lectured on transport economics. In 1934, his book "Problems of Transport Co-ordination in India" was published by the Oxford University Press. In 1935 Mr. Guha joined the former Assam Bengal Railway as an Assistant Traffic Superintendent. He was appointed Superintendent, Rates & Development on April 5, 1940. On the amalgamation of the Assam & Bengal and Eastern Bengal Railways, he joined the Bengal Assam Railway becoming, successively, Superintendent (Rates & Development). Superintendent (Claims), and Superintendent (General). In 1948 he was transferred to the Railway Board as Joint Director, Traffic, and was confirmed in that position in 1953. In October of that year he became acting Director (Traffic), and served in that capacity for seven months. Mr. Guha was Secretary of the National Railway Users' Consultative Council in 1953 and 1954 and, in the latter year, was Secretary of the Alagesan Committee on Catering on Indian Railways. In June, 1954, he returned to the North Eastern Railway as Deputy Chief Commercial Superintendent. In the same month he became acting Director (Traffic), and resumed his duties as Deputy Chief Commercial Superintendent in September, 1954. He was confirmed in that position the following May. From March 6, 1956, to May 31, 1956, and from September 1, 1956, to January 15, 1958, Mr. Guha officiated as Regional Superintendent, Muzaffarpur. During this period record traffic was handled at Manduadih. He was appointed Deputy General Manager (Works), Gorakhpur, the position he now vacates, on January 18 this year.

Mr. F. A. Dadge
Appointed Regional Accountant Designate, N.E. Region, British Railways

Mr. S. K. Guha
Appointed Director (Statistics), Railway Board of India

We regret that the name of Mr. Frank Gilbert was omitted from the list of those present at the funeral of the late Mr. W. P. Allen. The list was published in last week's issue.

Mr. S. J. Birch

Appointed Assistant Railway Accountant, British Transport Commission

Mr. T. R. Chapelhow

Appointed District Operating Superintendent, Manchester, North, L.M. Region

Mr. T. W. Royle

Appointed District Operating Superintendent, Birmingham (W), L.M.R.

Mr. S. J. Birch, who, as recorded in our April 18 issue, has been appointed Assistant Railway Accountant, Finance Department, Accounts Division, British Transport Commission, began his career with the London General Omnibus Co. Ltd. in 1925. On the formation of the London Passenger Transport Board in 1933, he was occupied in the taxation work of that body and, from 1939, was responsible for its assessments. In 1949 he transferred to the British Transport Commission where, as Senior Taxation Assistant, he had the task of completing the taxation assessments of the vested undertakings and setting up the organisation of the Commission's computations. In 1950 he was appointed Assistant Director of Accounts, Accounts & Statistics Division, the position he now vacates to take up his new appointment.

Mr. T. R. Chapelhow, District Operating Superintendent, Rugby, London Midland Region, British Railways, who, as recorded in our May 16 issue, has been appointed District Operating Superintendent of the newly-formed District of Manchester, North, was educated at Queen Elizabeth Grammar School, Penrith. He began his service with the London Midland & Scottish Railway in 1927 and spent the early years of his service training in various departments, including control offices, and as a relief clerk. In 1931, Mr. Chapelhow was one of the original members of the Western Division Shunting Analysis Committee, following which he became Traffic & Signalmen's Inspector. He was appointed train runner to the Commercial Manager, Manchester, in 1934, returning later to the Operating Department at Manchester (Central Division). After a period at Watford as Head Office Inspector and at the Divisional Office, Crewe, as Passenger Trains Inspector, he became Assistant District Controller at Peterborough, transferring later to Gowhole in a similar capacity. In 1947 Mr. Chapelhow was appointed Yardmaster at Grimesthorpe and, subsequently, Assistant to the District Traffic Superintendent at Chester and Assistant Divisional Freight Controller, Crewe. In 1953 he became Assistant District Operating Superintendent, Liverpool Lime Street, and, in 1955, District Operating Superintendent at Gloucester. He moved to Rugby in 1956.

Mr. T. W. Royle, who, as recorded in our May 2 issue, has been appointed District Operating Superintendent, Birmingham (W), London Midland Region, British Railways, began his railway career, in 1935, on the former L.M.S.R. as a clerk at Broxmoor. In 1938 he became a traffic

Mr. R. H. Tarr

Secretary, additionally appointed Vice-President, Canadian National Railways

Mr. Douglas I. Grant, Q.C.

Appointed Vice-President, Associated Services, Canadian National Railways

Mr. C. A. L. Mansbridge

Appointed General Agent, Manchester, Canadian Pacific Railway

apprentice and, on completion of his training in 1940, joined the Royal Engineers and rose to the rank of Major. After further railway experience at Wakefield, Mr. Royle was appointed District Signalmen's Inspector, Barrowhill, in 1946. A year later he became Assistant to District Operating Manager, Rotherham, and later, was appointed Assistant District Operating Superintendent, Leeds. Mr. Royle was appointed Assistant District Operating Superintendent, Burntisland, Scottish Region, in 1952, and he moved to a similar appointment at Leicester in August, 1954, it is this position he now vacates. Mr. Royle was educated at St. Bees School, Cumberland.

Mr. R. H. Tarr, Secretary, Canadian National Railways, who, as recorded in our March 21 issue, additionally has been appointed Vice-President of that system, assumes added responsibilities in connection with the organisational functioning of the system. Mr. Tarr was born and educated at Winnipeg, Manitoba. He graduated from the University of Manitoba with a Bachelor of Arts degree in 1930, and was called to the Manitoba Bar in 1934. He practised with Messrs. Craig, Tarr, Hughes & Macleod in Winnipeg until 1939, when he was appointed Assistant Secretary and later became Secretary of the Foreign Exchange Control Board, Ottawa. Mr. Tarr was appointed Assistant Secretary of the Canadian National Railways in 1952 and became Secretary two years later.

Mr. Douglas I. Grant, Q.C., who as recorded in our March 21 issue, has been appointed Vice-President, Associated Services, Canadian National Railways, will assume jurisdiction over hotels, communications, real estate, investigation, colonisation, agriculture, and certain other services. He was born in Orilla in 1901. After matriculating from St. Andrew's College, Toronto, he attended the University of Toronto and Graduated from Osgoode Hall Law School in 1926. He joined the Canadian National Railways in 1930, as a solicitor, at Toronto, and was appointed Assistant Secretary of the railway at Montreal in 1948. He became Secretary two years later and was made Executive Assistant in 1954.

Mr. C. A. L. Mansbridge, who, as recorded in our May 9 issue, has been appointed General Agent, Manchester, 1, Canadian Pacific Railway, was previously Chief of the Industrial Department in London. He joined the C.P.R. in 1929, in the office of the European Passenger Manager. From 1941 to 1945 he was on loan to the Ministry of Supply, first as Personal Assistant to the Controller of Transport (Shipping). In 1945 he became Transport Officer for the Ministry, in Paris, and moved to Southampton the following year as Port Officer. Mr. Mansbridge rejoined the C.P.R. in 1946, and returned to the Passenger Department for a short time before his transfer to the Industrial Department. He was appointed Chief of the Industrial Department in 1952.

Mr. J. R. Hodson has been appointed Press officer, British Transport Commission, in succession to Mr. C. S. Lock, who has retired.

Mr. S. F. Smith has been appointed Sales Manager, Industrial Instruments Division, Firth Cleveland Instruments Limited.

We regret to record the death, at the age of 58, of Mr. A. B. Porter, Engineer-in-Chief, Mersey Docks & Harbour Board.

The British Transport Commission announces the appointment of Mr. A. C. West, Chief Constable of Portsmouth, to be Chief Constable, British Transport Police. Mr. West will take up his appointment on July 7.

London Midland Region, British Railways, announces the following appointments:—

Mr. G. Mitchelhill as Traffic Assistant to Divisional Traffic Manager, Nottingham.

Mr. L. W. Williams as Assistant District Goods Manager (Sales), Manchester.

Mr. G. Phillips-Smith as Assistant to Irish Traffic Superintendent (Freight Services), Euston.

Mr. M. R. C. Hughes as Assistant District Operating Superintendent, London (M), located Marylebone.

Mr. T. F. Clayton as Assistant District Motive Power Superintendent, Newton Heath.

Mr. T. M. McEwan as Parcels Agent, London (Euston & St. Pancras).

Mr. A. C. Mukerji, Principal, Railway Staff College, Baroda, has been appointed General Manager, Southern Railway, India. He succeeds Mr. T. A. Joseph, who is on leave pending retirement.

Mr. Y. P. Kulkarni, Director, Establishment, Railway Board, India, has been appointed Additional Member (Staff), Railway Board. He succeeds Mr. S. L. Vishwanadhan, who is on leave pending retirement.

Mr. G. D. Khandelwal has been appointed Chief Operating Superintendent, Eastern Railway of India, in succession to Mr. Kripal Singh, who, as we recently recorded, has become General Manager of that system.

Mr. J. Lohmann, Superintendent of Operation, Netherlands Railways, and Mr. J. P. Koster, Chief Engineer, Rolling Stock & Electrical Equipment, Netherlands Railways, have joined the board of management of that system.

The following appointments, effective May 1, have been announced by Thos. Cook & Son Limited and Dean & Dawson Limited:—

Mr. A. S. Rolls, Branch Manager, Keighley, as Branch Manager, Dean & Dawson, Nottingham, on the retirement of Mr. F. Biggs.

Mr. D. G. Allen, Booking Clerk, Dean & Dawson, Manchester, as Branch Manager, Keighley Office, succeeding Mr. A. S. Rolls.

Mr. K. J. Lilja, Chief Booking Clerk, Stockholm, as Branch Manager of Stockholm Office, succeeding Mr. R. Bolton.

Mr. C. C. Turner as Accountant, East & Far East, succeeding Mr. C. Baxter.

Mr. David F. Craig has been appointed to the board of Liquid Systems Limited.

We regret to record the death, on May 9, at the age of 50, of Mr. E. A. Lawson-Brown, Service Engineer, Traction Department, Rugby Works, British Thomson-Houston Co. Ltd.

Mr. A. S. Davidson has been appointed by Coburn Engineers Limited, makers of sliding door gear, to act as their agent in the railway field.

Mr. Sebastian Z. de Ferranti has been appointed Managing Director Ferranti Limited.

Elsewhere in this issue we refer to a delegation of British transport officials which, led by Sir John Benstead, Deputy Chairman of the British Transport Commission, has left for Russia to tour Soviet railways. Names of members of the delegation are as follow: Mr. M. G. Maycock, Chief Civil Engineer, Scottish Region, British Railways; Mr. R. A. Green, Signal Engineer, Eastern Region, British Railways; Mr. E. S. Cox, Mechanical Engineer (Development), British Railways Central Staff, B.T.C.; Mr. A. H. Emerson, Assistant Electrical Engineer, London Midland Region, British Railways; Mr. L. W. Ibbotson, Assistant to Chief Operating Superintendent, Western Region, British Railways, and Mr. L. W. King, Assistant Department of Chief of General Duties, B.T.C. Headquarters.

Mr. S. E. Clotworthy has been elected President of the Aluminium Development Association for 1958-59, and Dr. Maurice Cook becomes Vice-President. The new Chairman of the Executive Committee is Dr. N. P. Inglis; he succeeds Mr. J. H. Mayes. Mr. E. D. Iliff succeeds Mr. R. Chadwick as Chairman of the A.D.A. Publications Committee. Mr. H. M. Bigford, Chairman of the A.D.A. Standards Committee, is replaced by Mr. E. G. Robinson. Chairman of the Marine Committee is Mr. F. Porcher. Mr. E. E. Spillett will be Chairman of a committee, newly formed to study the applications of aluminium in chemical and nuclear engineering. Mr. K. W. Brice will be Secretary to the A.D.A. technical committee.

The Road Haulage Association announce the appointment of the following officers for the year 1958-59:—National Chairman, Mr. R. N. Ingram; National Vice-Chairmen, Messrs. N. T. O'Reilly, J. B. Mitchell, H. H. Crow, and D. O. Good. The National Chairman, Vice-Chairmen and immediate past National Chairman, Mr. R. G. Crowther, become ex officio members of the National Executive Committee.

The following additional members have been appointed by the National Council:—Messrs. O. G. Wynn, H. Hunter, P. H. R. Turner, H. F. Capon, J. Clelland, A. R. Butt, R. H. Farmer, R. Atkins, L. Matthews, E. H. Patterson, J. Allsop, F. Rudman, L. R. Robson, and V. Neatherway.

The National Chairman and four Vice-Chairmen become ex officio members of the Finance Committee.

Additional members of the Finance Committee are Messrs. R. G. Crowther, W. Bridge, J. T. Turner, H. F. Capon, and J. Barrie.

INSTITUTE OF TRANSPORT

In addition to the election of Major-General G. N. Russell as President of the Institute of Transport, as recorded in our March 28 issue, the Institute announces the election of the following officers for 1958-59:—

Vice-Presidents

Messrs. David Blee, H. Leslie Bowes, E. R. L. Fitzpayne, A. S. C. Hulton, Sir Brian Robertson, and Mr. G. F. Sinclair.

Hon. Treasurer

Mr. D. McKenna.

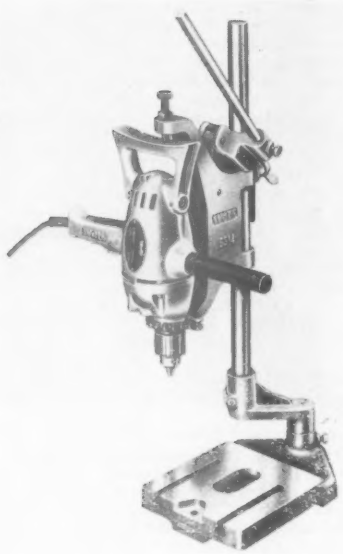
Hon. Librarian

Mr. C. H. S. Pickett.

Additional Ordinary Member of Council

The Rt. Hon. Lord Rusholme.

NEW EQUIPMENT AND PROCESSES



Small Radial Drill Arm

THE Wolf radial drill arm, for which a patent has been applied, is an accurately machined, solid steel casting which may be inserted between the base and pillar of the standard Wolf bench drill stand. There are four models, one for each of the stands in the range.

With the radial arm in position an articulated motion is given to the bench stand pillar. This freedom of movement, without any loss of rigidity, means that the entire base area is accessible for drilling. Holes up to the maximum capacity can be drilled in any position without the work piece being moved. Also, any similar positions around the central axis beyond the base area can also be reached. The pillar can be locked in any desired position.

Model No. RA/O to suit stand ESO, weighs 3¼ lb. and costs 52s. 6d.; other arms to suit stands ES14, ES23 and ES3 weigh 4¼, 10¾ and 13 lb. and cost 59s. 6d., 79s. 6d., and 95s. respectively. The radial drill arms are manufactured by Wolf Electric Tools Limited, Pioneer Works, Hanger Lane, London, W.5.

Jack Tamping Machine

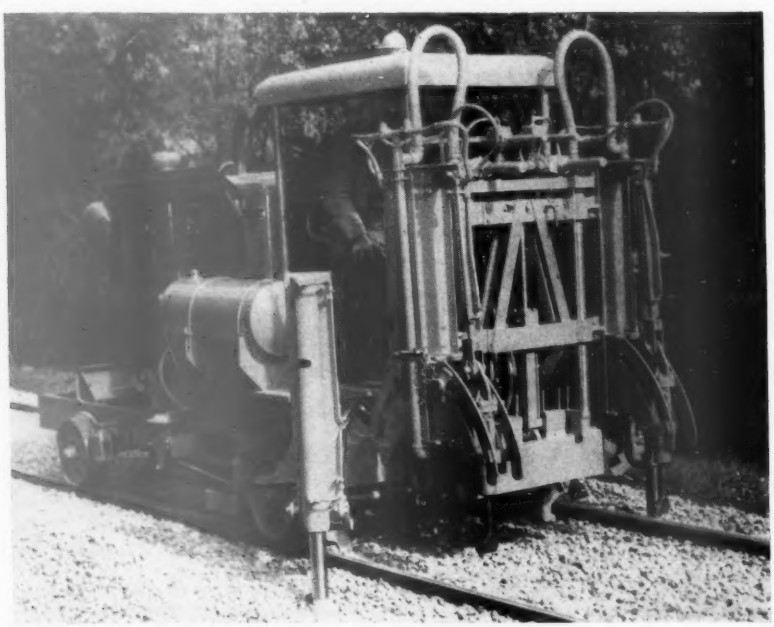
THE McWilliams Jack Tamper is claimed to be the only machine which will hold the levels in front of any production sleeper tamper; it has been developed by Railway Maintenance Corporation, of Pittsburgh, U.S.A.

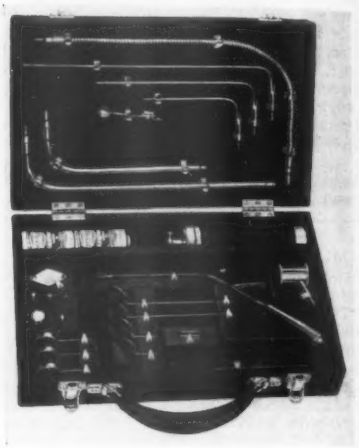
The Jack Tamper tamps every fourth or fifth sleeper to the required raise, thus eliminating the need for hand jacks. The speed of the machine and the ballast compaction is sufficient, it is stated, to hold the levels for the heaviest multiple tamping machine.

Tamping is accomplished by the same heavy-duty guns as used for the McWilliams Multiple Tie Tamper. Four tamping tools, two mounted on each side of the sleeper, uniformly compact the ballast under the sleeper.

The machine only requires one operator, and a man to sight the raise. In operation it is spotted, and clamped to rails. The jacks are lowered to lift the track height and the sleeper tamped. An integral level is used for accurate cross level and elevations.

Further details may be obtained from the manufacturing company, or from Beyer Peacock Railway Equipment Limited, Locomotive House, Buckingham Gate, London, S.W.1.





Industrial Inspection Kit

THE Ellispection kit consists of a series of rigid and flexible probes with fixed and movable mirrors, magnifiers and small battery-operated electric lights; the smallest of these is ¼ in. dia.

All parts are interchangeable and interlocking, and so one or more parts in any combination, make it possible to probe, illuminate and inspect machinery, castings, dies, pipe asemblies, and so on.

As shown in the accompanying illustration, the kit is housed in a compact, fitted, black hardwood case. All metal parts are finished in durable nickel and two standard U2 type torch batteries, or their equivalent, are housed in the battery handle.

Spare bulbs and spare batteries are supplied with each kit.

The price is £29. Further details may be obtained from Ellis Optical Company, Mayday Road, Thornton Heath, Surrey.

Laminated Plastic

A PHENOL-FORMALDEHYDE plastic laminate, Decorplast, is covered with a hard-wearing melamine surface. Railway applications include bulkheads, ceiling linings, table tops and toilets. All patterns are expected to have a dual use on both horizontal and vertical surfaces. If it is preferred to combine the appearance of wood with the virtues of a melamine finish, several laminates have been developed with a strong resemblance to real wood. The seven veneers are in oak, mahogany, sycamore, bird's-eye maple, and American and Australian walnut.

Decorplast is stated not to mark, chip, stain or fade, and to be impervious to water, grease, spirits, dilute acids and heat up to 310° F. There is also a special cigarette-proof grade.

It can be supplied in sheets of 9 ft. by 4 ft. and 8 ft. by 4 ft. each in veneer thickness of $\frac{1}{16}$ in. The same sizes of sheets are available ⅛ in. thick, with colour and patterns on both sides.

Details may be obtained from the manufacturer, Holoplast Limited, 116, Victoria Street, London, S.W.1.

Institution of Railway Signal Engineers

Annual general meeting: Mr. J. F. H. Tyler's presidential address

The 45th annual general meeting of the Institution of Railway Signal Engineers was held in London recently, with the retiring President, Mr. A. W. Woodbridge, in the chair.

In presenting the 45th annual report, Mr. Woodbridge referred to the very satisfactory financial position shown by the balance sheet. He announced the Council's awards for the two best papers read before the Institution in London during 1957. The first prize is shared by Mr. J. Gerrard and Mr. J. R. Walters for their joint paper on "The Corrosion of Underground Lead-Covered Cables"; the second prize was awarded to Mr. D. C. Webb for his paper "Automatic Operation in Marshalling Yards." Mr. Woodbridge then presented the awards.

The composition of the Council for 1958, resulting from the ballot, was announced as follows:—President, Mr. J. F. H. Tyler; Vice-Presidents, Mr. D. G. Shipp and Mr. W. Owen; Members of Council, Messrs. J. P. Coley, C. G. Derbyshire, J. S. S. Davis, R. A. Green, H. W. Hadaway, F. G. Hathaway, L. J. M. Knotts, E. A. Rogers, J. Sulston, A. F. Wigram, B. H. Grose, O. H. Hoffman, M. Le Sueur, F. Mann, A. E. Walker, and A. E. Williams.

Following Mr. B. Reynold's resignation from the post of Hon. Treasurer, Messrs. C. F. Burton & Company had been appointed Treasurers and had accordingly resigned from their position as the Institution's Auditors. Mr. K. W. Baynes was then elected Auditor.

Inaugural Address

Mr. Tyler then delivered his inaugural address. He said that the railway signal engineer had at his disposal today technical means which would enable more traffic to be moved over fewer tracks in greater safety than ever before. Why, then, was the introduction of modern multiple-aspect signalling, operated from control panels, justified only by electrification or exceptional traffic conditions? The answer was cost and a certain lack of appreciation of the full benefits to be derived.

He did not suggest for one moment that costs were high for what was being obtained, or that apparatus or methods were not of the highest standards. As a matter of urgency, methods should be examined to see whether the present path had been followed too long. Semaphore signalling, oil lights and mechanical locking frames, though not necessarily mechanical locking, were out of date.

Multi-Aspect Signalling

The first thing to be recognised was that modern multi-aspect signalling, by whatever means it was operated, was a safeguard which should be accepted without question and at least on the trunk routes without financial justification. In Britain the density of traffic, and of the fogs, was greater than anywhere else, and late running in bad weather would only be eliminated by properly sited colour-light signals and automatic train control.

The second thing for consideration was the centralisation of control. In Mr. Tyler's view, there was no doubt that the practical operating limit was related, in the ultimate, to the stretch of line which would normally be presided over by one traffic controller; it might even be possible, with a little thought, to increase his area.

To think in these terms, at the present, was unrealistic, because of the inadequate return on the high capital cost. Reduce the cost, and perhaps the return would justify the scheme. Couple that with an acceptance of the finance required to maintain the goodwill of the customer by good timekeeping in all conditions, and there would be a new outlook towards the installation of modern signalling.

Miniaturisation

The Institution, in co-operation with the B.T.C., had established a Miniaturisation Committee charged with the examination of new methods to see whether costs could be reduced by breaking away from traditional British practice. The aim should be so to reduce costs that mechanical operation was no longer cheaper than power.

One of the surest ways of keeping the costs of an installation to a minimum was to do it quickly, with experienced staff. They should aim at all-Regional standards, based solidly on principle, practice and mechanical design, in that order, and they should apply whether work was carried out by a contractor or by railway staff. Standardisation, by itself, would result in considerable economy by enabling planning and installation to be carried out more quickly. There would also be indirect economies resulting from staff being immediately effective after transfer from one Region to another. Staff would have knowledge of all installations, not only those on which they had been directly engaged.

To achieve standardisation, first principles must be settled in conjunction with the operating and motive power departments. Mr. Tyler went on to mention some of the questions which had to be answered before it would be possible to publish a British Railways Signalling Manual, which he regarded as urgent.

Variation in Practice

Once the principles were established, the settling on practice could be proceeded with, although that did not mean that the one must be completed before starting the other. At present, the practice in regard to circuits varied from Region to Region and, in contract work, system to system, which meant that five or six ways existed of doing exactly the same thing. Each job was tailor-made, necessitating the preparation of an interlocking and control table in considerable detail and wiring diagrams in complete detail. It followed that, if setting out to re-signal regional trunk routes in a reasonable time, the planning time must be drastically reduced, or technical staff would be required in impossibly large numbers. Mr. Tyler described the unit system of circuitry which he felt ought to be concentrated upon and adapted to British signalling principles.

Standardisation of design must not become a fetish, as there was no point in standardisation for its own sake. Manufacturers must not be unnecessarily restricted by insisting on absolute uniformity for every piece of apparatus, but it was only common sense to avoid having to hold stocks of material applicable only to one particular system or installation. Interchangeability was the most important requirement. It must not be overlooked that, as requirements were comparatively small, the benefit of mass production in reducing cost would only be gained if a common standard were adopted.

Mr. Tyler went on to describe some of the ways in which he considered a saving in the cost of production of essential items could be achieved. In all fields today, there was a trend towards lighter and smaller designs, resulting from improvements in materials and methods of manufacture. With few exceptions, signalling apparatus design had changed very little, broadly speaking, since the earliest days. They should concentrate on designing smaller and cheaper equipment.

Staff Recruitment

Great difficulty was experienced at the present time in recruiting sufficient technical staff of suitable calibre to deal with the modernisation plan. There was a lack of technical literature on modern railway signalling. Few realised that the only technical work of recent years was now out of print. The signal engineer's work needed to be publicised on a larger scale, so that the profession was not regarded as a closed shop or a dead-end job—neither of which was correct. Somehow they should see that the university undergraduate and the technical college student considered making railway signalling their chosen profession—not something to enter when all else failed.

Related to electrification and dieselisation, the signalling side of the modernisation plan could not be delayed whilst the signal engineers reviewed all their methods. It must continue to go ahead as quickly as possible on the basis of existing apparatus and systems; some of the best men should be chosen to study the whole question of signalling principles, practice, and design, with a remit to produce British Railways standards, taking every advantage, in co-operation with the manufacturers, of modern materials and methods of manufacture. He realised what that meant in the present shortage of experienced technical staff, but if it were not done that way, progress would not be fast enough to affect later stages of the plan and they would not have made the most of their resources.

Among British people central direction was not accepted easily, but it was only too true that signalling installations were planned and executed quicker and cheaper in those countries where standards were applied rigidly.

ROAD CASUALTIES FOR MARCH.—The Ministry of Transport & Civil Aviation reports that accidents on the roads of Great Britain in March caused the deaths of 429 people and serious injuries to 4,545. Compared with March last year, when petrol was rationed, these figures show an increase of 72 killed and 307 seriously injured. There were also 14,861 slightly injured, making a total for all casualties of 19,835, about 10 per cent. more than in March last year. The Road Research Laboratory estimates that traffic on main roads was 29½ per cent heavier than a year ago. Accidents per vehicle-mile were in fact about 15 per cent fewer than in March, 1957, and 5 per cent fewer than in March, 1956.

Institution of Locomotive Engineers Summer Meeting

Visits to transport and industrial undertakings in Northern Ireland and the Republic

The Summer Meeting of the Institution of Locomotive Engineers, attended by some 90 members and guests was held in Northern Ireland and the Republic on May 13 to 15. The main party met at Belfast on the morning of May 13; the party from London travelling from Euston via the British Railways Heysham-Belfast ss. *Duke of Lancaster*.

In the morning the party visited the Harland & Wolff Limited shipbuilding and engineering works founded in 1853; it is the largest single unit of its kind in the world, and provides employment for some 20,000 persons.

The main activities of the engine-building department comprise the construction of large marine steam turbines and water-tube boilers, marine and stationary and locomotive diesel engines. The company also undertakes general engineering work, and the production of a.c. and d.c. machinery, control gear, switchgear, and so on, and the fabrication of steel structures. Members were entertained to luncheon by the Directors of the company.

In the afternoon the party travelled by G.N.R. (I) diesel train to Dublin, where it was accommodated for the remainder of the meeting at the Shelbourne Hotel.

Summer Meeting Dinner

The Summer Meeting dinner was held at the Shelbourne Hotel on May 13, when members and guests were received by the President, Mr. E. S. Cox. The guests included: Sir Richard Levinge, Director in charge of Engineering, and Mr. W. Dresser, Chief Engineer, Arthur Guinness & Son (Dublin), Ltd.; Mr. T. C. Courtney, Chairman, Mr. O. V. S. Bulleid, Chief Mechanical Engineer, and Mr. D. Herlihy, Chief Engineer, Coras Iompair Eireann; and Mr. C. S. Andrews, Managing Director, Bord na Mona. The President expressed the pleasure of the Institution at being invited to the various undertakings and praised the work of the Irish Railways. He also referred to the contributions which Mr. Bulleid had made to locomotive engineering and to the Institution.

Mr. Bulleid, replying, spoke of the compliment which was being paid to the various Irish authorities, and also stated that the change over to diesel traction had been "profitable."

On May 14, the production and transport of milled peat was observed when the party visited the Bord na Mona establishment at Boora, Co. Offaly. There are, at present, three power stations operating on this fuel supplied by Bord na Mona and others have been planned. Last year 1½ million tons of peat were produced and it is possible for this to be doubled by 1961. The Boora establishment is the largest engaged in the production of milled peat where an area of 15,000 acres of bogland is being worked to produce 1,000,000 tons of milled peat per annum; the Electricity Supply Board is already operating a 60-mW. power station on the site, the largest area of its kind in Western Europe.

Internal transport of milled peat is provided by a 3-ft. gauge railway system; present track mileage is 22 permanent, and 8 temporary, but when the plant is in full production permanent trackwork will total at least 30 miles. Hauling power is provided by 35 four-wheel Rustan diesel locomotives of 40 and 48 b.h.p. They are being modified from standard in the light of the special operating conditions present on the site; such modifications include the addition of a super-low gearbox and improved sanding.

Inchicore Workshops

The following day one of two parties visited the Inchicore Works of Coras Iompair Eireann, the other the brewery of Arthur Guinness, Son & Co. (Dublin). Ltd. Inchicore Works, opened in 1846, is the largest engineering undertaking in the Republic of Ireland, covers 73 acres and employs about 1,400 people. The adoption of diesel traction has led to over 43,000 sq. ft. of the works being converted for maintenance and repair of diesel locomotives and railcars.

A number of rolling stock exhibits were arranged for members to inspect. These included a 2-2-2 Bury locomotive built in 1848; an 0-6-0 built at Inchicore Works in 1880, a 4 6-0 locomotive, No. 800, built at Inchicore Works in 1939, and a C-C 118-ton prototype turf-burning locomotive, built to the design of Mr. O. V. S. Bulleid, Chief Mechanical Engineer.

Diesel stock which was on view included a 1,200 h.p. class "A" Metrovick-Crossley Co-Co diesel-electric; 960 h.p. class "B" C.I.E.-Sulzer Bo-Bo diesel electric; 960 h.p. class "B" Birmingham-Sulzer AIA-AIA diesel-electric; 550 h.p. class "C" Metrovick-Crossley Bo-Bo diesel-electric; 487 h.p. class "D" Mirrlees 0-6-0 diesel-electric; 400 h.p. class "E" Maybach 0-6-0 diesel-hydraulic; 130 h.p. class "G" Deutz 0-4-0 diesel-hydraulic; and an A.E.C.-Park Royal 300-h.p. diesel railcar. Examples of recent coaching and wagon stock were also seen.

A tour of the works enabled members to see diesel locomotive and railcar repair facilities; a feature of one of the diesel erecting shops is four three-level servicing pits. The production of carriages and wagons was also observed. Four-wheel open 12-ton wagons are being produced at the rate of 12 a week; these 10-ft. wheelbase wagons have all-welded underframes and riveted steel bodies. Coaches of light-weight laminated wood construction are also being built; in these the one-piece framework/roof-stick members are of glued laminated plywood shaped to contour, which are attached to a wooden floor. This is in turn mounted on the carriage frame on rubber cushioning. Exterior body sides are of aluminium-faced plywood panels. The tare weight of a typical coach is in the order of 26½ tons.

A mock-up section of a suggested lay-

Mr. E. S. Cox (President) and Mr. R. Arbuthnott (President-elect) in the cab of the turf-burning locomotive

A group of members inspecting one of the exhibits arranged at Inchicore Works, a 2-2-2 Bury locomotive

out of a first-class coach with an off-centre corridor designed for 2 to 1 seating and generous sliding compartment doors which give space to the interior, was also seen.

Brewery Railway System

The Guinness Brewery is equipped with an 8¼-mile 22-in. gauge railway as well as a considerable length of Irish standard (5-ft. 3-in.) gauge track.

There are one steam and two diesel broad-gauge locomotives, 12 diesel narrow-gauge locomotives and four Geoghegan-Spence narrow-gauge steam locomotives of unusual design. Although built some 70 years ago they are still available for work. Wagon stock comprises 208 four-wheel tip wagons and 75 flat bogie wagons.

A feature of traffic operation is the use of the narrow-gauge locomotives for moving freight along the broad gauge lines of the Brewery which connect with the C.I.E. An electric hoist lifts the narrow-gauge locomotive on to a broad-gauge haulage wagon. It rests on friction wheels coupled through gearing to the track wheels of the wagon. When the narrow-gauge locomotive wheels turn, the wagon is propelled.

Members were entertained to luncheon at the Rupert Guiness Hall by invitation of the Directors of the company. In the afternoon, the members again divided, each party visiting the works seen previously by the other.

Later, members were taken to North Wall, for embarkation on the B. & I. steamer for Liverpool, where the meeting terminated.

G. D. Peters & Co. Ltd.

Another year of progress

The 49th annual general meeting of G. D. Peters and Co. Ltd. was held on May 19 in London, MR. ALEXANDER DOWIE, M.B.E., (the chairman) presiding.

The following is an extract from the statement by the chairman which had been circulated with the report and accounts:

The Accounts for the fifty-two weeks ended December 28, 1957, show a net profit, after charging all expenses but before making provision for taxation, of £252,988, compared with £164,891 for the previous year. Income Tax and Profits Tax require in all £128,000, leaving £124,988.

Your Directors recommend a Final Dividend of 7½ per cent, which will bring the total distribution for the year to 10 per cent, as compared with 7½ per cent for the last year and the Transfer to General Reserve of £100,000.

Your Company has made further progress and once again there has been a substantial increase in turnover against last year's trading.

The flow of incoming orders has also increased and today stands higher than ever before in the Company's history.

Review of Activities

The British Railways Modernisation Programme of continuous braking has taken up most of the expanded capacity of your Subsidiary, The Consolidated Brake & Engineering Co. Ltd., but we have also assiduously pursued overseas enquiries, and substantial orders from South Africa, South America, Pakistan, etc., will keep us very busy for some time to come.

The Capital policy of your Board, mentioned in my last Statement, of re-equipping the Foundry and Vacuum Brake Shops has resulted in greatly increased manufacturing efficiency with correspondingly reduced costs, so enabling us to quote keen prices against world competition.

The modern mechanised Foundry, together with the newly equipped Fettling and Pattern Shops, resulting from this capital investment, is also enabling us to supply economic ferrous castings to Industry generally, and a growing local demand is already being experienced.

Of your Company's other activities, the manufacture of transport seats and seat frames has gone ahead apace, and a further capacity expansion is being undertaken at present to provide for the increased demand we are being called upon to meet.

Packaging Machinery, another of your Company's progressive ventures, has, I may say, been developed to such an extent that during the year under review your Board decided that, as the packaging products of the Company had been so well received in all branches of Industry, it deserved its own organisation. A new Subsidiary Company has, therefore, been formed and named—Packaging Machinery (Peters) Limited—which has taken over the whole of the Company's Packaging Machinery interests. To bring the capital more into line with that employed in the Company's activities the consent of the Capital Issues Committee has been sought to increase the capital of the Company to £1,000,000 and to the issuing of a one for three scrip bonus. It must be clearly understood that the dividend rate will not necessarily be maintained at the present rate on the larger share capital.

There has been in improvement in the intake of skilled labour over the last few months, enabling product development to be acclerated, and this, together with greater stability in wages and prices, augurs well for the future of your Company.

The report and accounts were adopted.

Beyer, Peacock & Co. Ltd.

Good results: continuing financial position of strength and liquidity

The annual general meeting of Beyer, Peacock & Co. Ltd. was held on May 20 in London, Mr. Harold Wilmot, Chairman & Managing Director, presiding. The following is an extract from the Chairman's statement.

The position of the Group continues to be one of financial strength and liquidity. The conservative financial policy of your board has proved more than usually valuable during the year under review. We had no borrowing problems; on the contrary we were able to utilise our resources to help customers facing financing problems as a result of the credit squeeze.

The operating results for 1957 are closely in line with the forecast I made last year. Bearing in mind the consequential production losses resulting from the engineering strike in the spring of 1957, the results are considered by your board to be good.

During the year we have developed some new products and we continue to improve our existing range.

Our interests in articulated steam locomotives are well-known all over the world. For some years to come there will be special services for which steam in its most modern form will remain supreme. These special cases, however, are bound to grow fewer. Electricity generated in nuclear stations may in the future eliminate many of the special economic advantages of steam for heavy bulk haulage. With these and other considerations in mind your board, in collaboration with Metropolitan-Vickers Electrical Co. Ltd., formed a company in 1949 (Metropolitan-Vickers—Beyer Peacock Ltd.) with a plant at Bowesfield (Stockton-on-Tees). This Company handles, on joint account, locomotives of the electric and diesel-electric type. More recently diesel-hydraulic locomotives have been in increasing favour for certain duties, and for small powers diesel-mechanical locomotives are taking the place of the old steam shunters.

Formation of New Company

In order that your company should have an interest in all forms of railway motive power and to fill the obvious gap, a new company was recently formed, Beyer Peacock (Hymek) Limited. In this company we hold half the equity, the other half being held by Armstrong Siddeley Development Co. Ltd., a company in the Hawker Siddeley Group. I hope to report further on this newest project next year.

At the date of writing this review the board of Metropolitan-Vickers—Beyer Peacock Limited has proposed a first dividend. That company has a good forward order book.

Demand for our agricultural equipment products continues to expand and sales are now at very satisfactory levels. On the other hand, machine tool production, whilst fair in 1957, is showing a decline. New models are on the way, but foreign competition is very keen and prices may have to be reduced.

During 1957 your board made a bid for the shares of the Anti-Attrition Metal Co. Ltd. The company now holds 87½ per cent of the equity of this business which will add to the variety of the group's products.

Some further extensions of the Group are in contemplation. Our continuing policy is to broaden the basis of operations in a logical way so as to avoid, if possible, the more severe effects of demand fluctuations in any one product.

It is difficult to forecast operating results for 1958. The recession in the United States, the uncertainties at home, and the slump in world prices of certain base metals, play a large part in determining when our customers will place the larger orders for steam locomotives on which we still depend for full production. In the absence of some fairly quick improvement in world conditions it may well, for a period, be impossible to maintain total turnover on the scale of recent years.

The report and accounts were adopted and the proposed final dividend of 6 per cent, plus a bonus of 6 per cent, making a total of 16 per cent, less tax, for the year was approved.

FALL IN MACHINE TOOL ORDERS.—The fall in machine tool orders continued during February. Both orders and deliveries declined compared with January and also with February last year. New orders received during the month amounted to some £5,300,000, compared with £6,600,000 in January. Deliveries also dropped, from £8,600,000 in January to £7,070,000 in February.

Staff and Labour Matters

Railway Wage Claims

Increases of 3 per cent accepted for British Railways and London Transport staff

After an unsuccessful attempt at a meeting with the British Transport Commission on May 15 to persuade the Commission to improve its wage offer the N.U.R. decided later the same night to accept the offer.

The dispute has thus been settled on the basis of a 3 per cent increase in the rates of pay of salaried and conciliation staff employed by British Railways with effect from June 30, 1958.

A review of the wages and salaried structure is to take place at an appropriate time and there may be a preliminary meeting with the unions in this connection in August.

After the settlement the British Transport Commission issued the following statement on May 16:—

"The British Transport Commission is glad that its offer to resolve the railway pay claims has been accepted. This offer resulted from proposals made at the meeting with the Prime Minister on April 22 for joint action by the Government, the Commission and the unions to strengthen the finances of British Railways.

"The Commission wishes to acknowledge the assistance given by Her Majesty's Government in this difficult situation. In particular it welcomes the assurance that the Government will give any necessary support to reductions in uneconomic services. The assistance given by the Government has been an essential factor in the final settlement.

"The attitude of the trade unions and of the men they represent has justifiably commended itself to public opinion.

"On its part the Commission has undertaken that substantial reductions in working expenses will be achieved. It will fulfil this undertaking. The assurances received from the Government and from the trade unions will enable it to carry through the extension and intensification of the programme of rationalisation already introduced on the railways.

"This programme must include some drastic reductions in passenger services. The Regional managements, however, in making these reductions will take the utmost care to cause the minimum of inconvenience to the travelling public. They wish to re-assure their customers in trade and industry that nothing will be done to prejudice the standard of freight services which British Railways offer to them. On the contrary, steps to improve these services will be intensified.

"Modern railways are an essential feature of modern transport. This settlement will permit all on British Railways to concentrate their efforts on speeding the railways modernisation plan."

Speaking about the settlement the Minister of Transport & Civil Aviation on May 16 at Camberley said:—

"An insolvent underpaid key industry must enevitably be a drain on the whole economy and the Government welcomes the settlement made by Sir Brian Robertson and the railway union leaders because it is strictly within the principles of the Government's anti-inflationary policy. In other words the Government, the Commission and the unions, by working together have already started to improve the Commission's financial position not on the basis of promises but on basis of actual performance.

"No doubt this businesslike approach will not be welcomed by those who want to apply the regidity of extreme economic theory to this great industry. However, I am encouraged by the fact that those leaders of industry with whom I have discussed this settlement consider it fair and not inflationary. The Government has not subsidised this increase in any way, nor is it an inflationary increase, because it is found by the industry within its own resources.

"It is most important that this should be realised by other employers because what has been done on the railways provides no lead or encouragement to other employers to grant wage increases unless they are similarly justified by savings or productivity. If all employers follow this settlement and grant no more than 3 per cent increase to be found within their own resources then we shall have beaten inflation the right way.

"The Government has never said its policy means that no wage increases should be granted. What it has said is that they must be granted on the basis of no more money being made available to finance them. This then, in the Government's view, is a commonsense solution to a difficult problem which not only affects the railwaymen but every one of us in this country. This solution also points the way how to solve the broader problems of how to expand without inflating. What the railways have done is to help themselves. It is, therefore, one that shold be welcomed not only within the railway industry but by the country as a whole.

"The settlement was not a permanent solution of the railway problem. Modernisation had to be forced forward at a greater pace. There has to be more productivity, greater efficiency giving better service to the railways' customers. There has to be a reduction of services which no longer really fit in with the modern traffic patterns of today. It is no use running a railway designed for the Victorian era in days when there are seven million motor vehicles on the roads of this country."

London Underground Railwaymen

A meeting took place on May 20 between representatives of the London Transport Executive and representatives of the three railway trade unions in connection with applications for improved rates of pay for staff employed on the Underground railways.

The Executive proposed that there should be an increase of 3 per cent in standard rates of pay with effect from June 30, 1958, in line with the increase for British Railways staff.

The London Transport Executive representatives said that it was intended to make certain economies in the operation of the Underground, which would probably include a shortening of the daily period during which the railways were in operation, and some reduction in service where traffic demand was small. It was agreed that such proposals would be the subject of discussion at an early meeting of the London Transport Railways Joint Consultative Committee.

The L.T.E. representatives agreed that, if there were changes in the British Railways wages structure as a result of a comprehensive examination which altered the relationship between British Railways and London Transport railway wages, the Executive, in conjunction with the trade unions, would review London Transport railway wages in so far as they were affected by the changes on British Railways.

Later that day it was announced that the three unions had accepted the L.T.E. proposal.

London Bus Workers Pay Dispute

The strike of London bus workers in connection with the claim for increased pay entered its third week on May 19.

Sir Wilfred Neden, Chief Industrial Commissioner of the Ministry of Labour, arranged to see representatives of both sides on May 21 at the Minister's suggestion. He met Mr. Frank Cousins, General Secretary of the Transport and General Workers' Union, with other union officials in the morning and Sir John Elliot, Chairman, Mr. A. H. Grainger, Deputy Chairman, and Mr. A. Bull, Member, of London Transport Executive, in the afternoon.

Parliamentary Notes

Future Transport Labour Disputes

The Government may define in the near future more closely the position of the nationalised industries in relation to industrial disputes. This was indicated by Mr. Iain Macleod, Minister of Labour & National Service, in the House of Commons on May 16, in answering a series of questions about the desirability of his intervention to bring about a settlement of the bus dispute.

He was asked by Mr. A. Robens (Blyth—Lab.) if he did not feel that the flexible approach of the Government and the parties in connection with the recent railway discussion, which had produced so admirable a result, was the sort of flexible approach that, if used now, could settle the bus strike.

Mr. Macleod said in reply that intervention by him at that moment would not be helpful, and he believed that if Mr. Robens was in his position, he would come to the same conclusion after discussion with his expert advisers.

"With regard to the railway settlement," proceeded Mr. MacLeod, "I join the right hon. gentleman in his remarks. I am sure the House is delighted that there has been a settlement of that dispute—there is a very great difference between that dispute and the bus dispute. I do not think it is a question of being rigid or being flexible; I am often being accused of both. The railway settlement and my intervention came about because there was a very distinct change in the financial position of the B.T.C. as the result of the modernisation proposals which were worked out."

Later, Mr. Macleod stated: "After all these matters are settled, perhaps we should try to define more closely the position of the nationalised industries and the Government in relation to industrial disputes. It is a position of great flexibility, and it causes great difficulty and embarrassment to the Government and,

I dare say, to the corporations as well. I entirely agree about that, but I assure the hon. member that although we throw them about in debate, political matters do not come into my judgment as to the right time to intervene."

Nigerian Railway

Mr. Hector Hughes (Aberdeen N.—Lab.) asked the Secretary of State for the Colonies on May 15 if he would make a detailed statement on the extent and condition of the railway systems in Nigeria. He also said that further railway development in Nigeria was necessary for proper development and exploitation of the country, and that it would be unfair to put the financial burden of that upon the new Government.

Mr. Alan Lennox-Boyd: The detailed reply circulated in the Official Report is:—

The Nigerian railway system comprises some 1,770 route miles of 3 ft. 6 in. gauge line connecting Nguru in the north and Lagos and Port Harcourt in the south. There are branch lines from Zaria to Kaura Namoda, Kafanchan to Jos, Minna to Baro and Ifaw to Idogo. The system is wholly single track.

With the object of speeding up train movements and reducing operating costs the Nigerian Railway Corporation is at present undertaking a five-year programme of modernisation and improvement covering the period 1955-60, the estimated cost of which is £21¼ m. The main items in the programme are the provision of new diesel-electric locomotives, diesel railcar sets for suburban and branch line passenger services; new rolling stock for both passenger and freight, track relaying and improvement, rebuilding of passenger and freight stations, extension and improvement of sidings, marshalling yards and other terminal facilities, new running sheds, modernisation of workshop plant and machinery, and improvement of the communications and signalling systems.

At present the Railway Corporation has 214 main-line steam locomotives, 58 shunting locomotives, 10 diesel-electric locomotives, 4,841 wagons, 496 coaches. There are on order 25 main-line diesel-electric locomotives, 4 diesel shunting locomotives, 2 diesel railcars, 1,055 wagons and 69 coaches.

The Corporation is also undertaking an extension of the existing railway system from Kuru, just south of Jos to Maiduguri in the Bornu Province in the north east of Nigeria, a distance of approximately 400 miles. The extension will be a single line track. It will open up a productive area which has hitherto lacked adequate communications and is expected to result in an increase of exportable products. Work is expected to commence forthwith, and it is hoped that the extension will be completed by late 1963. The total cost of the project is estimated at £19½ m.

The International Bank for reconstruction and development is providing a loan of £10 m. towards the £41 m. needed for the 1955/60 plan and for the Bornu extension. Of the balance £12 m. will be provided by the Federal Government of Nigeria and £19 m. from the railways' own resources.

Tentative plans for an extension of the 1955/60 programme for a further five years are expected to cost about £19 m. Specific financial arrangements for this extended programme have not yet been made, but the Corporation expects that its own resources will nearly suffice with possibly some borrowing from the Federal Government.

Contracts and Tenders

Stone equipment for Hungary : Henschel locomotives for Ghana

J. Stone & Co. (Deptford) Ltd. have received a contract for the supply of 100 complete sets of air-conditioning equipment, to be installed in all types of main-line railway coaches and railcars built in Hungary. It is intended to develop joint manufacturing of further equipment under licence. The value of the contract is reported to be in the region of £1,000,000.

Ghana Railway & Harbours Administration has placed a contract with Henschel & Sohn G.m.b.H., Kassel, Germany, for 18 General Motors type 1,200-h.p. diesel-electric locomotives, and six 500-h.p. diesel-hydraulic locomotives.

The British Transport Commission has placed an order with the English Electric Co. Ltd., Bradford, for 26 four-motor electric equipments for new two-car multiple-unit trains to be built at British Railways Wolverton Works for the Manchester-Bury electrified line, London Midland Region. The first of the new multiple-unit trains will be introduced early next year, in replacement of the present trains, now over 40 years old.

The electric equipments ordered will be constructed to operate on the 1,200-V. d.c. third-rail system already in use on the Manchester-Bury line. This system is to be retained on this particular line because conversion to the overhead system of electrification, involving considerable engineering work, would defer for some years the provision of new rolling stock for the Manchester-Bury service.

British Railways, London Midland Region, have placed the following contracts:

Jesse Tildesley Limited, Willenhall, Staffs: supply and erection of steelwork at extension to stripping shed, Locomotive Works, Derby

Harbour & General Works Limited, Morecambe, Lancs: proposed Dolphin at Heysham Harbour

H. Fairweather & Co. Ltd., Muswell Hill, London, N.10: accommodation for Divisional Traffic Manager in Peter House, St. Peter's Square, Manchester

W. H. Streeter Limited, Hampton, Middx: staff amenities at down carriage shed, Euston

Edward Wood & Sons, Ltd., Derby: office accommodation and amenities for traffic staff at Stott Lane Sidings, Patricroft

A. E. Roome & Co. Ltd., London, E.9: alterations to tea terrace No. 13 departure platform, Euston

Demolition and Construction Co. Ltd., London, S.W.1: new paving at Crown Street Goods Depot, Carlisle

J. Gerrard & Sons Ltd., Swinton, Manchester: alterations to arches to form relay room at London Road, Manchester

Thos. Collier & Sons Ltd., Leigh, Lancs: general building work at sleeper depot, Ditton

Leonard Fairclough Limited, Adlington, Lancs: work in connection with main-line electrification; construction of Booth Street bridge, Stockport, demolition of adjacent tunnels and strengthening of abutments and retaining walls.

British Railways, Eastern Region, have placed the following contracts:

Clough, Smith & Co. Ltd., Crawley, Sussex: supply, delivery and installation of main yard lighting, roadway lighting and medium voltage distribution at Ripple Lane New Marshalling Yard, Barking

W. & C. French Limited, Buckhurst Hill, Essex: construction of new overbridge No. 1453 between Roydon and Burnt Hill stations

Fuller Electric Limited, Fulbourne Road, London, E.17: erection of feeder station and track sectioning cabin equipment and supply, delivery, and erection of associated equipment between Colchester and Clacton.

British Railways, Scottish Region, have placed the following contracts:—

Morrison Dunbar Limited, Glasgow: erection of new signalbox, Bowling, and Strathclyde Junction, Rutherglen

P. & W. Anderson (Glasgow) Limited, Glasgow: new diesel repair shop and diesel fuelling facilities, Grangemouth Motive Power Depot

Clayton Crane & Hoist Co. Ltd., Liverpool: provision of nine 1-ton electrically operated hoist blocks, Motherwell long rail welding installation

Grant Lyon & Co. Ltd., Scunthorpe: earthworks and retaining wall, Motherwell long rail welding installation

A. S. Wright & Co. Ltd., Glasgow: repairs to roof glazing and walkways, Glasgow Central Station

Industrial Engineering Limited, Glasgow: repairs to roof, Perth Central Station

Westinghouse Brake & Signal Co. Ltd., London: A.T.C. installation, Edinburgh Waverley to Glasgow Queen Street

Fleming Bros. (Structural Engineers), Ltd., Glasgow: design and erection of rolling stock maintenance depot, Hyndland.

The Special Register Information Service, Export Services Branch, Board of Trade, has received calls for tenders as follow:—

From Sudan:

3 shunting locomotives.

The issuing authority is the Sudan Gezira Board. The closing date is July 12, 1958. The Board of Trade reference is ESB/12624/57.

2,000 standard tyres for carriage and wagon wheels to drawing No. 408/2986, in class D steel, B.S. report 24, specn. 5.1942.

The issuing authority is the Controller of Stores, Sudan Railways, Atbara. The tender No. is 1769. The closing date is July 1, 1958. Prices should be quoted on both f.o.b. and c.i.f. Port Sudan basis. The Board of Trade reference is ESB/12625/58.

Further details regarding the above tenders, together with photo-copies of tender documents, can be obtained from the Branch (Lacon House, Theobalds Road, W.C.1.).

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the closing date of the call for tenders from South Africa for main-line passenger coaches, recorded on page 636 of our November 29, 1957, issue, has been postponed to July 4, 1958.

Notes and News

False Ceilings in London Transport Escalator Shafts.—With reference to the article on page 434 of our issue of April 11, we are asked by London Transport to state that Mr. C. E. Dunton, Chief Civil Engineer, London Transport, was responsible for the installation at Hyde Park Corner Station. The false ceiling at Bond Street was the responsibility of Mr. Thomas Bilbow, Architect, London Transport.

Cammell Laird Associated Companies.—In last week's issue reference was made to the satisfactory results of Metropolitan-Cammell Carriage & Wagon Co. Ltd. and English Steel Corporation Limited, which we described as subsidiaries of Cammell Laird & Co. Ltd. It has been pointed out that these firms are not strictly subsidiaries as the shareholding of Cammell Laird of the former is 50 per cent of the issued capital and in the latter 25 per cent. 75 per cent of English Steel is held by Vickers Limited.

Travelling Public's Views Sought on Refreshment Cars.—Passengers in some Southern Region trains between Portsmouth and Waterloo are being asked to complete a questionnaire. They are being asked what sort of refreshments, if any, they require; also whether they use the restaurant car, and, if not, why not. The enquiry, which is being undertaken by a market research firm on behalf of B.T.C. Hotels & Catering Services and British Railways, Southern Region, will take several months to complete.

B.I.C.C. Limited at the British Electrical Power Convention Exhibition.—The main theme of the British Insulated Callender's Cables Limited stand at the British Electrical Power Convention Exhibition to be held at Brighton from June 16 to 20, will be "B.I.C.C. cables serve the world." This theme will be illustrated by a large map and a comprehensive display of low, medium, and high voltage cables, including the 33-kV. cables with seamless corrugated aluminium sheaths. Reference will be made to recent large cable contracts in many parts of the world. High voltage rubber cables and mineral insulated cables will also be exhibited.

Western Region Whitsun Holiday Arrangements.—British Railways, Western Region, plan to run over 260 additional long distance trains for Whitsun holiday travellers during the period May 23 to 27 inclusive. It is anticipated that traffic will reach its peak on May 23, 90 extra trains having been scheduled for that day. These include 22 specials to Paddington and a similar number from Paddington, serving points in the West of England, South Wales and the Midlands.

Standardisation Conference.—On Monday evening last, the Chairman and members of the Locomotive & Allied Manufacturers' Association gave a cocktail party in the Trevithick Suite at Locomotive House, London, S.W.1, for the delegates to the biennial conference on Standardisation of Railway Mechanical Equipment on Overseas Railways. This conference, which is organised by the Crown Agents, is being held in London next month.

British Railways Experiments with Electronic Computers.—Operating staff of the London Midland and Eastern Regions of British Railways, working in collaboration with representatives of the English Electric Co. Ltd. and Ferranti Limited on their respective electronic computers "Deuce" and "Pegasus", are studying the problem of revising and constructing railway timetables by electronic computers. The London Midland Region and English Electric Co. Ltd. are attempting to provide timings for special trains superimposed upon the timetable train service, and at a later stage to carry out a seasonal revision of the existing timetable for a chosen section of line with the object of improving the passenger train services. The Eastern Region and Ferranti Limited intend eventually to produce a timetable which would make the best use of the line capacity and the rolling stock and train crews available.

British Trade Fair in Lisbon.—The Federation of British Industries announces that the next British Trade Fair will be held in Lisbon from May 29 to June 14, 1959. The fair will be organised by British Overseas Fairs Limited, a subsidiary of the F.B.I. Some 10,000 copies of the brochure "British Trade Fair Lisbon" are being sent to British manufacturers and to agents in Lisbon. The fair will be held in the new Exhibition Hall in Lisbon. Some 45,000 sq. ft. of exhibiting space will be available to British exhibitors inside and 80,000 sq. ft. outside the hall. Buyers from the whole of south-west Europe will be encouraged to visit the fair, which will be organised in trade sections. It has the full support of the British and Portuguese Governments. It will coincide with the second phase of the electrification programme of the Portuguese Railways' main line from Lisbon to Oporto. Phase one of this programme, from Lisbon to Entroncamento, was described in our January 18, 1957, issue. Equipment was supplied by French manufacturers.

Results of Superheater Co. Ltd.—The group net profit for 1957 for the Superheater Co. Ltd. was £346,454, which compares with £327,027 for the previous year. Fixed assets are £1,067,985 (£523,476) following quinquennial revaluation. A surplus of £404,087 was transferred to capital reserve. Current assets are £2,126,309 (£2,000,839) and liabilities £447,704 (£351,764). Capital reserves are £435,754 (£25,000), Preference dividend reserve £50,000 (same), revenue reserve and surplus £1,464,342 (£1,240,563) and future tax £293,615 (£268,250). Commitments total £20,000 (£131,000).

British Railways, Eastern Region, Whitsun Arrangements.—The Eastern Region of British Railways is to run 364 additional main-line trains during the Whitsun holidays. Many will run from London to serve the West Riding of Yorkshire, Newcastle, Edinburgh, Glasgow, and Aberdeen, as well as the principal towns and holiday resorts of East Anglia. Similarly, a large number of extra trains will be run to cater for passengers coming to London, and in addition, many cross-country services will be duplicated.

British Railway Delegation to Russia.—A delegation from the British Transport Commission and British Railways left London on May 20 for a three-week tour of Russian railways. The delegation, which is led by Sir John Benstead, Deputy Chairman of the Commission, will be the guests of the Ministry of Railways, U.S.S.R. The visit follows a tour of British Railways made by a party of seven Soviet railway experts last November. The British party will visit railway works and installations, particularly those where important developments have been carried out in recent years. The itinerary will cover progress in electrification and diesel

British Railway Amateur Boxing Finals

Sir Brian Robertson, Chairman of the British Transport Commission, presenting the inter-Regional Challenge Shield to Mr. David Blee, General Manager, London Midland Region (*see our May 16 issue*)

traction; gas turbine locomotive development; modern methods of permanent way construction; train operation; marshalling yard operation; the design of passenger coaches and wagons, and signalling, telecommunications, and automatic train control. Names of delegates are included in this week's Personal Section.

North British Hope of Profit in Current Year.—The consolidated profit and loss account for the year ended December 31, 1957, of the North British Locomotive Co. Ltd. shows a loss of £54,556 before taxation and after taking current contracts and £98,000 set aside in previous years, compared with a loss of £476,453 for 1956, The net loss is £58,980; no dividend has been recommended. The report states that with the orders already on the books and those received this year, the works should be fully employed for some time to come. If nothing unforeseen occurs in the course of the current year, it is confidently anticipated that, with an increased output, the company will once again be earning a profit.

Accident at Paisley, Scottish Region.—A passenger train travelling from Gourock to Glasgow was in collision with a light engine and brake van just after leaving Paisley Gilmour Street station on May 20. The two engines met head on; the light engine was forced about 200 yd. back along the track and the first two coaches of the passenger train were telescoped. It is reported that there were about 300 people on the train, of whom over 100 were injured; one of the injured died later.

British Railways Staff Association Photographic Competition.—The British Railways Staff Association photographic competition, the first arranged by the Association, is now open for entries until September 15; it is in two classes: black and white, and colour. To create the widest possible interest, and to encourage the eventual formation of a camera club, the competition is open to all staff working in the B.T.C. headquarters offices, including B.R.S., Docks, Hotels & Catering, and Waterways, and to their wives and dependants. The object is to capture and portray some of the many new and unusual developments in the nationalised transport undertakings. Subjects suggested are new locomotives, trains, buses, coaches, lorries, ships, and other craft; new buildings, including railway stations, depots, dock terminals; handling equipment and electronic devices; unusual revenue-earning ideas in action, such as car/sleeper trains and cruise trains, sea ferries for road vehicles, and canal cruisers; and staff doing unusual jobs, ranging from the skipper of a canal hostel boat to the train hostess "baby sitting" whilst the mother is in the refreshment car. The judges will be looking for topicality and originality besides quality and composition of the entries.

Brown Bayley Steels Report.—The report of the directors of Brown Bayley Steels Limited, which covers a period of 15 months to the end of 1957 because of reorganisation, shows a profit, in the consolidated profit and loss account, of £851,765 after providing £125,000 for outstanding repairs to plant. The fixed assets show a net increase of £85,030. The liquid resources at the end of the period total £798,117, compared with £817,130 for last year. Debtors are increased to £1,304,041 (£863,068) and creditors from £505,151 to £572,711. The excess of current assets over current liabilities amounts to £2,545,801. Sanction has been received from the Iron and Steel Board to proceed with the building and equipping of a new forge. This project is estimated to cost £700,000 and will be finished in about three years. It will also give increased production of large rings for which there is an ever-increasing demand, particularly from the bearing industry.

Railway Benevolent Institution.—At a meeting on May 19 the Board of the Railway Benevolent Institution granted annuities to 19 widows and 13 members involving an additional liability of £605 a year; 91 gratuities were also granted amounting to £867 to meet cases of immediate necessity. Grants made from the Casualty Fund during the month of April amounted to £1,392.

Disembarkation Formalities Defended.—The controls used to restrain what she called the surprising number of people who try to "fiddle" their way into Britain as travellers have been defended by Miss P. Hornsby-Smith, Joint Parliamentary Under-Secretary, Home Office. She was speaking on travel formalities last week at the London conference on tourism organised by the British Travel & Holidays Association. There were no travel barriers to genuine travellers, she said, but she thought the conference might underestimate the enormous potential number of people who would "dig into" Britain given the opportunity.

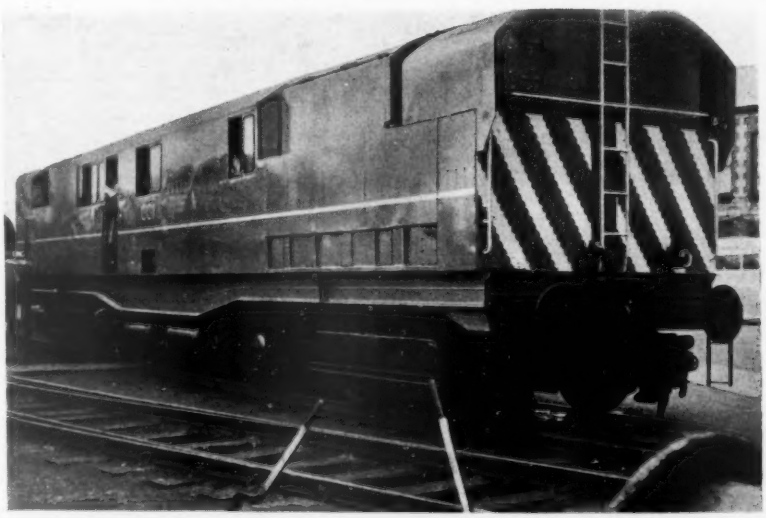
Whitsun Holiday Travel on the Southern Region.—During the Whitsun holidays (May 24-26) the Southern Region of British Railways will run over 450 additional main-line trains between London and the South and South East Coast and to the West of England. Country afternoon tickets to the Kent and Surrey hills will be issued from London and certain suburban stations, and there will be a comprehensive programme of seaside and country excursions. On May 26 there will be a "no passport" excursion to Boulogne from Victoria which will allow visitors some 5 hr. on the French coast.

British Railways, London Midland Region, Ambulance Competition.—The finals of the British Railways, London Midland Region, Ambulance Competition were held at Belle Vue Gardens, Manchester, on May 14. 1958. The competition was won by St. Pancras "A" with 549½; Derby C.M. & E.E. (Loco) "A" was second with 517 points, and Kirkby Stephen East third with 463½ points. The trophies and prizes were presented by Mr. David Blee, General Manager, London Midland Region.

International Nickel Earnings for First Quarter.—The interim reports of the International Nickel Co. of Canada Ltd. and subsidiaries for the three months ended March 31, 1958, shows net earnings in terms of United States currency of $12,213,000 after all charges, equivalent to 83 cents per ordinary share. This compares with the three months ended December 31, 1957, when net earnings were $20,124,000, or $1·38 per share, and the first quarter of 1957 net earnings being $23,504,000, or $1·61 a share.

Western Region Fire Drill Competition Finals.—The Finals of British Railways, Western Region, Fire Drill competitions were held at Marylebone Goods Station on May 15. These competitions are held annually. Taking part this year were 168 teams representing depots and stations in all parts of the Region. The tests were made up from new drills, entirely different from any used in previous years. Winning teams in each section will represent the Region in the Inter-Regional Finals to be held at Marylebone Passenger Station on June 3, 1958. The results are as follow: 2-Man Bucket/Extinguisher Drill—First Swansea (St. Thomas) R. & M. (C. & W.), 34 1/5 sec. (no penalties); Second Wolverhampton Engineering, 35 1/5 sec. (no penalties). 3-Man Hydrant Drill—First Paddington Goods, 1 min. 16 1/5 sec. (no

C.I.E. Prototype Turf-Burning Locomotive



Double-bogie turf-burning locomotive seen at Inchicore Works during the summer meeting of the Institution of Locomotive Engineers (*see page* 608)

penalties); Second Swindon M. & E.E., 1 min. 16 3/5 sec. (no penalties). 5-Man Trailer Pump Drill—First Swindon M. & E.E., 1 min. 31 1/5 sec.; Second Caerphilly, 1 min. 51 4/5 sec. (no penalties).

Exports of British Mechanical Handling Industry.—Annual exports of mechanical handling equipment from Britain totalled £55 million. These included earth-moving equipment but excluded agricultural equipment. If handling devices built into manufacturing aind processing equipment were to be included, the total would probably be at least £70 million.

Taylor Bros. (Sandiacre) Ltd. Centenary.—In celebration of the centenary of Taylor Bros. (Sandiacre) Ltd., the directors of the company entertained 725 employees and their wives to a supper dance on May 2, at the Sherwood Rooms, Nottingham. During the evening Mr. Leonard Taylor, Managing Director, presented gold watches to 20 employees who had completed 30 years' service with the company since the last such presentation in 1951. To mark the centenary, he also presented silver vases to a further 22 employees who had received gold watches in 1951 and were still in the employ of the company, having completed from 37 to 59 years' service.

British Oxygen Factory at Glasgow.—A factory now being built in Glasgow will enable British Oxygen Gases Limited to meet increased demands for its industrial gases in Scotland. The 25-acre site is in close proximity to the company's existing factory at Polmadic, and a compressing station and stores, together with a liquid oxygen plant, will be erected there. Work at the site commenced in March and it is anticipated that the buildings will be completed within 12 months. Architect for the project is British Oxygen Engineering Limited and the building contractor is John Laing & Son Ltd. Other contracts have not yet been placed.

Skefko Ball Bearing Co. Ltd. Satisfactory Results.—The chairman of the Skefko Ball Bearing Co. Ltd., Sir Victor Mallet, has stated in his report that the results for the year 1957 are very satisfactory in spite of the difficult start to the year following the recession in the automobile and allied industries. The balance of profit totalled £596,885 as compared with £442,791 for the previous year. A total dividend of 11½ per cent is recommended for the year. Dividends for 1957 will amount to £290,375, leaving an amount carried forward of £279,757. £250,000 is transferred to general reserve, bringing the reserve total up to the same level as a year ago before the capitalisation of reserves, namely £400,000. A further £50,000 has been allocated to the capital reserve for the replacement of fixed assets, and this reserve now totals £477,929.

Company Formed to Manufacture Transistors.—The companies, the Automatic Telephone & Electric Co. Ltd., the English Electric Co. Ltd. and Ericsson Telephones Limited have announced the formation by them of a jointly-owned company for the development and manufacture of transistors and other semi-conductor devices. The company, to be known as Associated Transistors Limited, has an authorised capital of £750,000. A factory is being constructed at Ruislip, Middlesex, which will have an area of some 55,000 sq. ft. Although the primary purpose of the company is to manufacture switching transistors for the telecommunications requirements of the sponsor companies, it will also manufacture semiconductor devices of more general applications.

F. Perkins Limited.—Good progress is being made oversea by the subsidiaries of F. Perkins Limited, the diesel engine manufacturers. Mr. F. A. Perkins, the Chairman, has stated that the Canadian subsidiary has continued to do a large amount of initial work in an endeavour to increase trade in North America, where the company hopes to achieve good orders, and another major American truck manufacturer is now offering the company's engines as optional equipment. The associated French company has continued to prosper and in Yugoslavia the business has continued to be satisfactory.

Forthcoming Meetings

June 3 (*Tue.*). to June 6 (*Fri.*).—Institute of Transport. 1958 Congress in Dublin.

June 5 (*Thu.*).—Model Railway Club, at Caxton Hall, Westminster, S.W.1, at 7.45 p.m. Talk on "Famous railway accidents," by Mr. T. S. Lascelles.

June 6 (*Fri.*).—The Railway Club, at Royal Scottish Corporation, Fetter Lane, London, E.C.4, at 7 p.m. Paper on "The Hastings direct line," by Mr. D. Cullum.

June 7 (*Sat.*).—The Railway Club. Tour of lines in the West Midlands with special train of goods brake-vans over branch to Shipston-on-Stour.

June 7 (*Sat.*) to June 12 (*Thu.*).—Permanent Way Institution Summer Convention at Weston-super-Mare.

June 14 (*Sat.*).—Permanent Way Institution, Leeds & Bradford Section. Visit to Hull Docks.

June 14 (*Sat.*).—Permanent Way Institution, East Anglia Section, at Ipswich. Film "Teeth of Steel," introduced by Mr. A. Stokes.

Railway Stock Market

The better tendency in stock markets which followed relief that a railway strike had been averted gave way later to fresh uncertainty resulting from developments in Algeria and other international news. British Funds have strengthened because of revived talk in the City that a lower bank rate is not unlikely before long if there is an early end to the bus strike. At all events it is widely assumed that later in the year a 5 per cent bank rate is a probability. Buying of industrial shares was very selective, sentiment having been influenced by the mixed showing of financial results coming to hand.

The principal topic among foreign rails has been the decision of Antofagasta to postpone payment of the half-yearly preference dividend because of the fall in traffics. The trend of the latter was known, of course, but it had been hoped in the market that it would have been possible to pay the dividend on the preference stock: but evidently the outlook is viewed with caution. As compared with a week ago Antofagasta ordinary stock has declined from 17 to 12, and the preference stock from 34¼ to 26. The preference stock is, of course, cumulative as to dividend, and for the investor prepared to look ahead, there is little doubt that both the preference and ordinary stocks offer scope for capital appreciation.

An easier trend continued in San Paulo Railway 3s. units, which were around 2s. 3d. Brazil Railway bonds were 5½ in other directions, Mexican Central "A" bearer debentures 66, and United of Havana second income stock has been dealt in around 6¼. Elsewhere, Chilean Northern first debentures transferred at 38½. Costa Rica ordinary stock was 17 and the 6½ per cent second debentures 88½. Guayaquil & Quito assented bonds kept at 75½, while International of Central America shares were $22½ with the preferred stock $125.

Canadian Pacifics reflected the reaction in Wall Street markets, and were $48½, compared with $49½ a week ago. White Pass have been maintained at $14½, and Peru Transport "B" shares were $⅛.

Nyasaland Railways shares at 11s. 3d. remained under the influence of the higher dividend and the 3½ per cent debentures were 58½xd. Quotations for Midland of Western Australia ordinary stock kept at 6½ and the income debentures at 14½.

Shares of locomotive builders and engineers have been rather more active, but were mostly the same as a week ago, with Beyer Peacock 5s. shares steady at 8s. 4½d., and Charles Roberts 5s. shares 7s. 6d. xd. Westinghouse Brake again changed hands around 38s. at which there is a yield of 5½ per cent on the basis of last year's 10 per cent dividend.

G. D. Peters provided a firm feature at 32s. 6d., with the shares tightly held and in short supply in the market. In other directions, Gloucester Wagon 10s. shares were 14s. 9d. and Wagon Repairs 5s. shares 11s. 6d. North British Locomotive have changed hands around 12s. and Birmingham Wagon were 16s. at which they yield over 12 per cent on last year's 10 per cent dividend. Vickers at 30s. 7½d. remained under the influence of the annual review of the group's activities which emphasises the attention given to research work. Cammell Laird 5s. shares have rallied to 7s. 7½d. F. Perkins 10s. shares turned firmer at 11s. following the chairman's annual statement, while in other directions, Craven Bros. 5s. shares were 6s. 10½d. but T. W. Ward turned a little easier at 73s. 3d. Associated Electrical have been more active around 47s. 9d. with General Electric 30s. 3d. and English Electric 53s. The 10s. shares of the Dowty Group were firm at 33s. 3d., but the strike news eased Pressed Steel 5s. shares to 14s. 9d. xd. Blaw Knox 5s. shares were 17s. 6d. and British Timken 49s. 3d. with Ransomes & Marles 5s. shares 10s. 7½d.

OFFICIAL NOTICES

CITY OF SHEFFIELD. Sewage Disposal Department. Blackburn Meadows Works—Reconstruction and Extensions. Phase 1—Sludge Treatment Plant—Contract No. B.M.(R.S.)9. Supply of Standard Gauge Railway Material (Part 1). Tenders are invited for the supply of the following railway material:—67 tons (approx.) New 75-lb. per yard FLAT BOTTOM RAILS (slightly defective would be accepted). 1—No. BULLHEAD and 3—No. F.B. TURNOUTS. 650—No. (approx.) New or Secondhand Grade 3 STANDARD GAUGE SLEEPERS. 1,000 ft. (approx.) CROSSING TIMBERS of new pressure creosoted or good quality secondhand material Form of Tender, Specification and Bills of Quantities can be obtained on application to the undersigned on payment of a deposit of £2 2s. 0d., which will be returned on receipt of a bona-fide Tender not subsequently withdrawn. Tenders in the official envelope provided, which must bear no indication of the Tenderer, must be delivered to the Town Clerk, Town Hall, Sheffield, 1, not later than 12.0 noon on Friday, 13th June, 1958. Jas. H. Edmondson, General Manager and Engineer, Sewage Disposal Department, Wincobank, Sheffield, 9.

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